

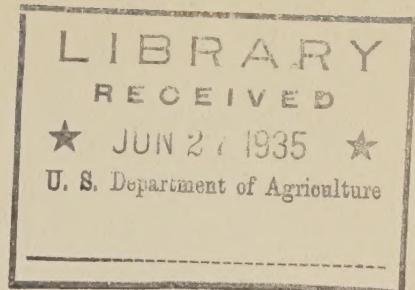
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FIRE HAZARD SURVEY

Beltsville Research Center
Beltsville, Md.



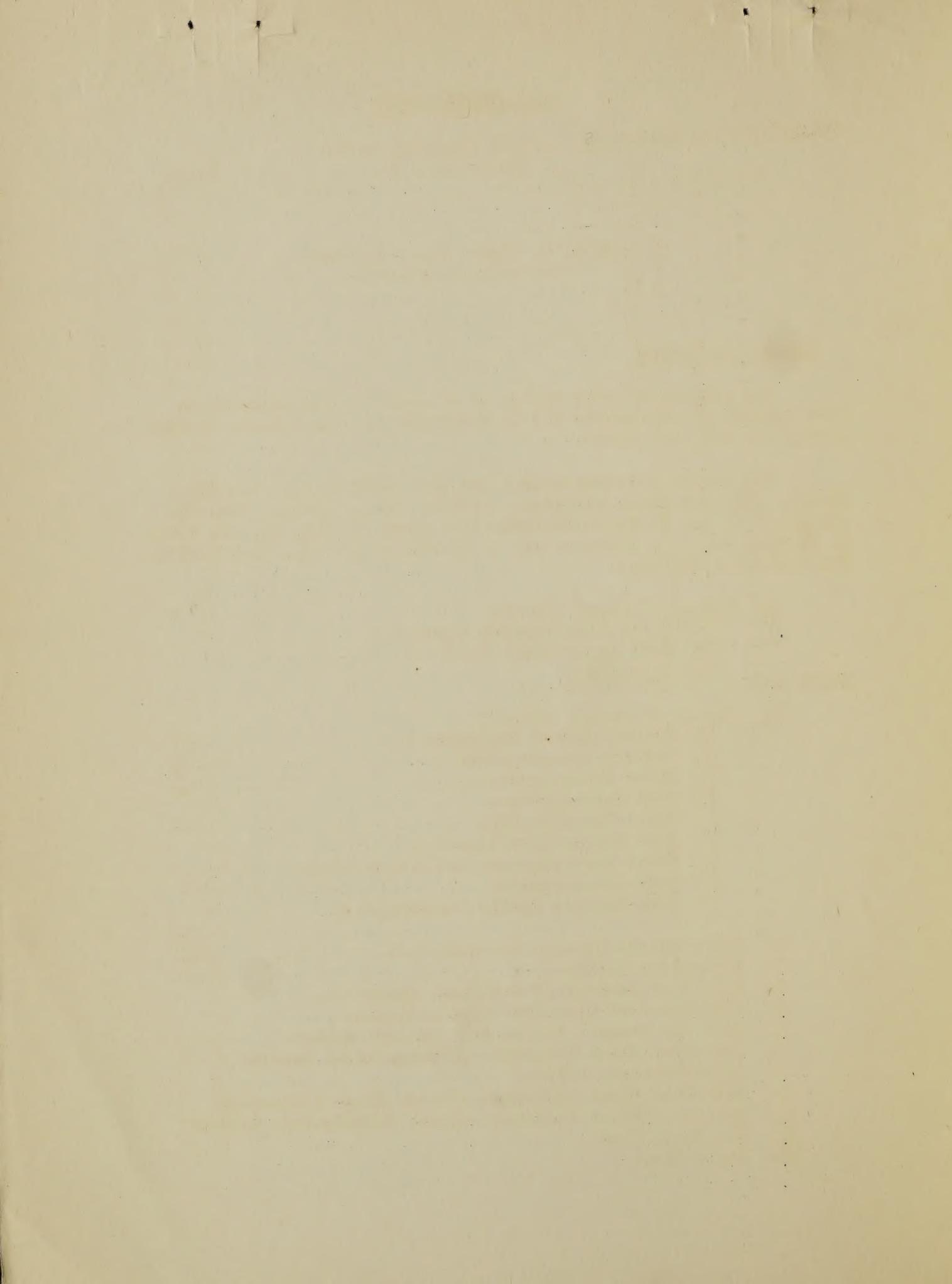
By P. L. Blake, Plant Engineer
Division of Operation

Purpose of Survey

The purpose of this survey is to secure information as to fire hazards as now exists and to recommend certain methods of fire prevention and protection.

The entire Research Center has been divided into tentative groups, and each group assigned a number. These groups, with the exception of No. 11 Plant Introduction, shown on Plan #4, are shown on Drawing No. 1, a skeleton map of the Beltsville Research Center. The numbering follows:

1. Bureau of Dairy Industry
 - (a) North Farm (Souraci Farm)
 - (b) Main Group (Hall Farm)
 - (c) Smith Farm
2. Bureau of Animal Industry
 - (a) Central Animal Husbandry
 - (b) Poultry Investigation
 - (c) Swine Investigation
 - (d) Meat Investigation
 - (e) Sheep Investigation
 - (f) Beef Cattle Investigation
 - (g) Horse Investigation and Machine Shed
 - (h) Goat Investigation
 - (k) Dual Purpose Cattle Investigation
3. Pathological Disease Research Unit
4. Zoological Division.
5. Bureau of Entomology and Plant Quarantine
6. Department of Commerce - Radio Station
7. Food and Drugs - Insecticide Control Section
8. Bureau of Plant Industry - Horticultural Section
9. Sewage Treatment Plant
10. Bureau of Plant Industry - Forage Crops & Diseases
11. Bureau of Plant Industry - Plant Introduction Garden
12. Wm. Hanse Farm
13. Maier Tract



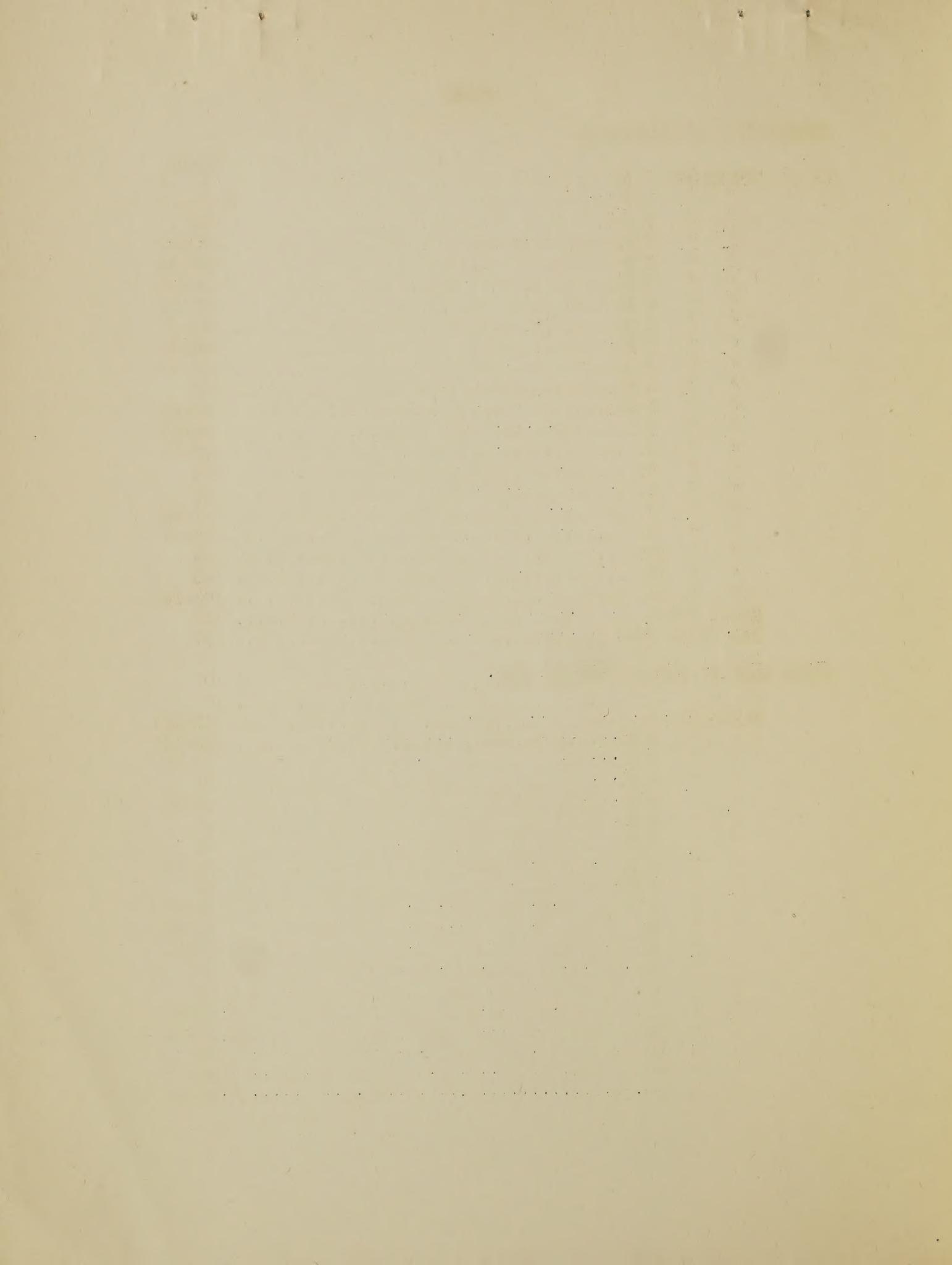
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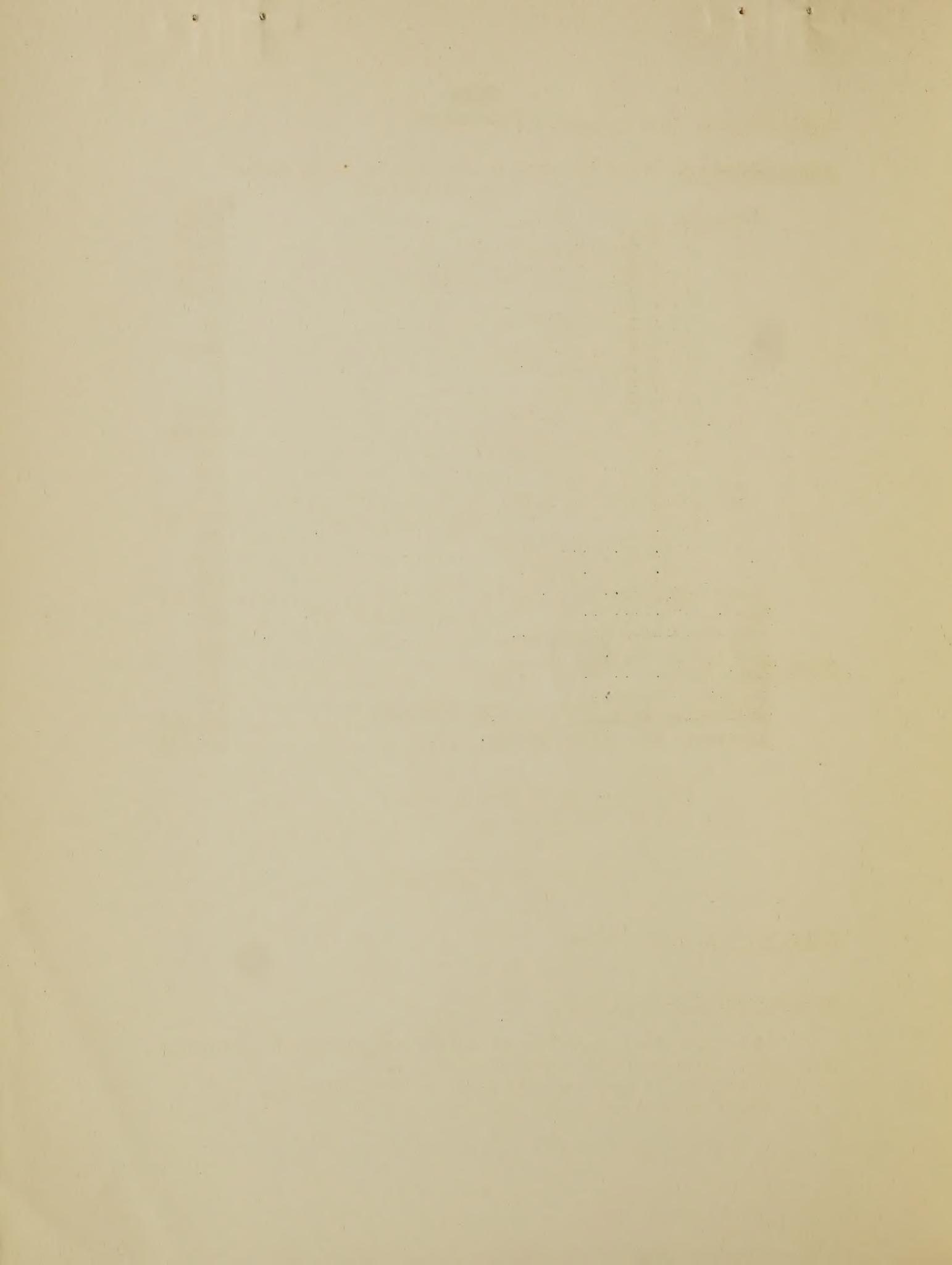
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GROUP NO. 1 A (See Drawing No. 3)

Bureau of Dairy Industry (north side of road, known
as North Farm)

Buildings

- (31) Pump House
- (32) Calf Barn, Hay, Grain & Silos
- (33) Office
- (34) Dairy House
- (35) Herd Barn
- (36) Milking Parlor
- (37) Test Barn
- (38) Scale Shed
- (39) Nutrition Barn
- (40) Cottage (Mueller)
- (41) Hay Barracks
- (42) Mule Barn
- (42E) Machine Shed & Quarantine Slaughter
- (42W) " " Mechanical Shop
- (43) Quarantine Barn
- (44) Poultry House
- (45) Superintendent Residence
- (46) Superintendent Residence (Garage)

GROUP NO. 1 C (See Drawing No. 3)

Bureau of Dairy Industry (Smith Farm)

Buildings

- (50) Young Stock Shed & Silo
- (51) Hay Barracks.

DESCRIPTION OF BUILDINGS

GROUP NO. 1 A. (North Farm)

Building No. 31 - Pump House

This is a frame building 11 x 11 with galvanized corrugated iron roof. This building houses Well No. 4.

There are no fire extinguishers in this building.

Total floor space - 121 sq. ft.

Building No. 32 - Calf Barn, Hay Shed, Grain Room and Silos.

This building is a long shed-like frame structure approximately 90 x 18 with galvanized corrugated iron roofing. Twenty-five feet of the west end is partitioned off and used as a Calf Barn. Thirteen feet of the east end is partitioned off and is used as a Grain Room. The frame partition between Grain Room and Hay Shed has a sheet metal covering and the exterior end wall of grain Room is made of tile with stucco finish. There are two seventeen-foot concrete silos joining the rear of Hay Shed. There is a small frame shed 12 x 18 joining the northeast corner of this structure.

There are two fire extinguishers in this building.

Total floor space - 1,836 sq. ft.

Building No. 33 - Office

A small frame building 10 x 16 serves as an office. The roof is covered with galvanized corrugated iron.

There is one fire extinguisher in this building.

Total floor space - 160 sq. ft.

Building No. 34 - Dairy House

A frame structure 18 x 24 used to house boilers and dairy machinery. There is a small verticle fire tube boiler, and a small C. I. sectional boiler. This building has a galvanized corrugated iron roof.

There is one fire extinguisher in this building.

Total floor space - 432 sq. ft.

Building No. 35 - Herd Barn

This is a frame building 40 x 84 with galvanized corrugated iron roofing. There is a wooden ceiling in this barn. Attached to the southwest corner of the building is a 6 x 6 shed used for storage of silo carts.

There is one extinguisher in this building.

Total floor space - 3,360 sq. ft.

Building No. 36 - Milking Parlor

This structure is an 18 x 34 frame building connecting Building No. 35 and Building No. 37. The roof is of galvanized corrugated iron. There is a wood ceiling.

There are no fire extinguishers in this building.

Total floor space - 612 sq. ft.

Building No. 37 - Test Barn

This is a frame building with wood ceiling and galvanized corrugated iron roof. The building is 32 x 87.

There is one fire extinguisher in this building.

Total floor space - 2,784 sq. ft.

Building No. 38 - Scale Shed

A small shed 12 x 16 covered with galvanized corrugated iron roofing.

There are no fire extinguishers in this building.

Total floor space - 192 sq. ft.

Building No. 39 - Nutrition Barn

This building is 36 x 51, of frame construction and roofed with galvanized corrugated iron. It has a wood ceiling.

There are no fire extinguishers in this building.

Total floor space - 1,836 sq. ft.

Building No. 40 - Cottage (Mueller)

This cottage has exterior walls of tile and finished with stucco. It is unoccupied and in a delapidated condition. It is two story and approximately 33 x 42.

Building No. 41 - Hay Barracks

This is a frame constructed building 36 x 70. It has asbestos shingles on the roof.

There are no fire extinguishers in this building.

Total floor space - 2,520, sq. ft.

Building No. 42 - Mule Barn

This is a two story barn 30 x 42. The first floor has stalls for mules (or horses). Part of space is partitioned off into a harness room and a feed room. The second floor is used for hay storage. This building is of frame construction with asbestos roof shingles.

There are two extinguishers in this building.

Total floor space - 2,520 sq. ft.

Building No. 42 E - Machine Shed

This building is attached to the east side of Building No. 42. The part immediately adjacent to Building No. 42 has concrete walls, and is used as the Quarantine Slaughter Room. The balance of building is used to store baled straw, corn, and farm machinery. The building is of frame construction and covered with Asbestos shingles. The building is L shape and covers approximately 4,000 square feet.

There are no fire extinguishers in this building.



Building No. 42 W - Machine Shed

The shape and size of this building is similar to No. 42 E. There is a portion 21 x 36 immediately adjacent to Building No. 42 which is used as a Machine Shop, and Supply Room (see Sketch). This building is a frame structure having Asbestos shingles.

Total floor space - 4,000 sq. ft.

Building No. 43 - Quarantine Barn

This building is of frame construction with asbestos shingles. The first floor is divided into stalls for the stock, and the second floor is used for storage of hay and feed. The building is 30 x 52.

There is one fire extinguisher in this building.

Total floor space - 3,120 sq. ft.

Building No. 44 - Poultry House

This is a shed 8 x 20 built entirely of wood and covered with roofing paper.

Total floor space - 160 sq. ft.

Building No. 45 - Superintendent's Residence

A two story frame building approximately 39 x 42. It has a stucco exterior.

Building No. 46 - Garage (Supt.'s Residence)

This garage is constructed of tile with exterior of walls stucco.

GROUP NO. 1 B (See Drawing No. 3)

Bureau of Dairy Industry (South side of Road)

Buildings

- (1) Nutrition Laboratory and Administration Bldg.
- (2) Herdsman's Cottage
- (3) Foreman's Cottage
- (4) Milk Products Laboratory
- (5) Transformer
- (6) Boiler House
- (7) Pump House
- (8) Temperature Building
- (9) Mechanical Shop.
- (10) Maternity Barn
- (11) Calf Barn



- (11a) Calf Barn
- (11b) " "
- (11c) " "
- (12) Small Animal House
- (13) Nutrition Barn
- (14) Feed Barn No. 1
- (14a) " " " (East Wing)
- (14b) " " " (West Wing)
- (15) Silos
- (16) Scale House
- (17) Test Barn
- (17a) " " Milking Parlor
- (18) Feed Barn No. 2
- (19) Auto parking space
- (20) Veterinary Laboratory
- (21) Physiological Laboratory
- (22) Autopsy Building
- (23) Pump House
- (24) Small Animal House
- (25) Garage (Temporary Bull Barn)
- (26) New Bull Barn

DESCRIPTION OF BUILDINGS

GROUP NO. 1 B

Group No. 1

Building No. 1 - Nutrition Laboratory and Administration Building.

This is a building consisting of two stories, basement and attic. The part of the building designated as "Nutrition Laboratory" is of fireproof construction with walls of concrete, steel sashes and asbestos shingles. The attic construction is of wood with rafters exposed. This building is steam heated and its electric service is in conduits. The first floor is divided by fireproof partitions into several offices. The office equipment is mostly made of wood. The second floor is divided into several laboratories and a chemical supply room. The attic is used primarily as a storage space. While there is not much material stored in the attic at the present time there are at present ten bales of hay and some glassware supplies stored there. The basement is divided into several rooms designated as one dict room, three animal rooms, one store room, one washroom and one instrument room. There is a small lift that runs from basement to attic. This lift is enclosed and, in case of fire, would readily lend itself as a natural flue. There are no hand extinguishers in this portion of the building.

Total floor space exclusive of attic - 11,040 Sq. Ft.

The part of the building designated as "Administration Building" while of fireproof construction generally, it has wooden sashes. The basement is divided by fireproof partitions into several rooms, namely, ice machine room, supply room, gentlemen's toilet, locker room, York refrigerating room. The only room that might be considered as hazardous



is the supply room which, at the present time, contains brooms, baskets and wood barrels containing soda. Just outside of the basement door in an open areaway, there is an open can containing approximately one gallon of oil. The first floor is divided by partitions into three laboratories and a wash room. In laboratory #214, there is at all times approximately five gallons of Ethyl alcohol and three gallons of ether. In the summer, while working with the ether, there is rapid evaporation taking place. Should there be any manner of igniting this gas, it would be considerably hazardous, but the operators are exceedingly careful as they know this hazard exists. In laboratories #210 and #212 the same conditions exist. The attic has wood floors and exposed wood rafters. This particular space is kept fairly clear of any accumulated storage. In this building all staircases are of wood. There are three hand extinguishers in this portion of building.

Total floor space exclusive of attic - 5,772 Sq. Ft.

Building No. 2 - Herdsman's Cottage

This is a small five-room bungalow with concrete walls, wooden rafter timbers and asbestos shingles. This building is protected by fire extinguishers.

Total floor space, exclusive of basement - 436 sq. ft.

Building No. 3 - Foreman's Cottage

This is a small five-room bungalow with concrete walls, wooden rafter timbers and asbestos shingles. This building is protected by fire extinguishers.

Total floor space, exclusive of basement - 436 sq. ft.

Building No. 4 - Milk Products Laboratory

This is a new two-story building of fire proof construction with asbestos shingles. The first and second floors are well divided with fireproof partitions. The attic has exposed wood roof rafters and concrete floor. At the present time, equipment is being placed in this building. There are no fire extinguishers in this building.

Total floor space, exclusive of attic - 9,936 sq. ft.

Building No. 6 - Boiler Room and Pump House

This is a one-story building with concrete walls and floor. The roof, which also is the ceiling, is plastered on the inside. This ceiling has only a few inches clearance above the top of the boilers. There are four 48-inch Erie City Iron Works, economic type boilers operating at 35 lbs. pressure. Two of these boilers are coal-fired and two are oil-fired. Outside the boiler room there is a radial block stack.

The pump room is separated from the boiler room by a six-inch fire-proof wall and houses one Gould Triplex pump, one Demins Triplex pump and one Myers type deep well pump.

There are no fire extinguishers in this building.

Total floor space - 1,440 sq. ft.



Building No. 7 - Pump House

This building was formerly designated as "Pumphouse". At present it is used to house two hand hose-reels. It is a small concrete building, one-story high with wood roof and asbestos shingles. No fire extinguishers in this building.

Total floor space - 180 sq. ft.

Building No. 8 - Temperature Building

This is a small one-story frame building with middle section having attic space. It is plastered on the inside. At present this building is occupied as a storehouse for pipe-fittings and supplies. Just outside of this building is a temporary wooden shed about 10 x 16 feet which is used as a storage shed for cement. There are no fire extinguishers in this building.

Total floor space - 1,000 sq. ft.

Building No. 9 - Mechanical Shop

This is a two-story building with outside walls of fireproof construction and asbestos shingles on roof. The first floor is divided by fireproof walls into a machine shop, garage, supply room and paint shop. A small room in the corner of the building houses a 6 x 8 Gould Triplex fire pump. The second floor is used as a carpenter shop. There is also a small supply room on this floor. The ceiling over half of this space is covered with Cel-O-Tex; the balance half is made into an attic with exposed wood rafters. The entire basement of this building is used as the main water reservoir for this group of buildings. There are two fire extinguishers in this building.

Total floor space - 4,900 sq. ft.

Building No. 10 - Maternity Barn

This is a new two-story building of fireproof constructed walls to the ceiling. The second floor is of wood and has exposed wood rafters covered with asbestos shingles. Gable ends covered with asbestos shingles. This second floor is used for storing hay. There is one extinguisher in this building.

Total floor space - 5,600 sq. ft.

Buildings No. 11, 11a, 11b and 11c - Calf Barns

Buildings 11a, 11b and 11c are one-story fireproof constructions with wood ceilings, wood rafters and asbestos shingles.

Building 11 is of frame construction with asbestos shingles. At the east end of these barns there runs a concrete passage joining all barns. (See Drawing No. 2) There is one extinguisher in this building.

Total floor space, exclusive of passage, 8,823 sq. ft.

Building No. 12 - Small Animal House

This is a one-story frame building with concrete floor and asbestos shingles. One end of the building is separated into several concrete calf



stalls. This building is used primarily to house rabbits. There is one fire extinguisher here.

Total floor space - 2,112 sq. ft.

Building No. 13 - Nutrition Barn

This is a two story building with concrete walls running six feet above the second floor. The second floor is also of concrete. The roof has exposed wood rafters and asbestos shingles. The first floor is used for cattle and the second floor is used for storage of feed and hay. In the basement, which is divided by fireproof partitions, there is one room for milking machine vacuum pump and one room used for the steam distillation of alcohol. There are two fire extinguishers located in this building.

Total floor space - 12,816 sq. ft.

Building No. 14, 14a, and 14b - Food Barn #1

This is a frame building with the exterior walls stuccoed and interior walls plastered. The main building is designated as No. 14; the West Wing as No. 14a and the East Wing as No. 14b.

Building No. 14 is two stories high and is used for grinding and crushing food and contains the necessary machinery therefor. The second floor is used for hay storage. It is of mill construction with all floor joists and rafters exposed. The roof is covered with asbestos shingles. There is quite a bit of dust lying on all ledges. The stairs in this building are also of wood.

Buildings No. 14a and 14b are one-story high and are used to house the stock.

There are four fire extinguishers in these buildings.

Total floor space - 15,560 sq. ft.

Building No. 15 - Silos

At present there are five concrete silos which are joined by a frame structure stuccoed on the outside. The fire siren for this group of buildings is located on top of this structure.

There is approximately 100 sq. ft. floor space.

Building No. 16 - Scale House

This is a one-story concrete building with exposed wood rafters and asbestos shingles. There is no fire extinguisher in this building.

Total floor space - 512 sq. ft.

Buildings No. 17N, 17S and 17E

Building 17 N - This is a frame building stuccoed on the outside; wood walls and ceiling, exposed wood roof rafters with asbestos shingles.



Building 17S - This is a two-story frame building with mill constructed ceiling and concrete floor. This building is stuccoed on the outside. The second floor is used for hay storage.

Building 17E - Side walls of this building are of concrete to a point three feet above the floor, the remainder of the side walls being of wood. The ceiling is wood and exposed wood roof with asbestos shingles.

There are four fire extinguishers in these buildings.
Total floor space - 16,350 sq. ft.

Building No. 17a - Milking Parlor

This is a small one-story building with concrete walls and floor and with wood ceiling; wood rafters covered with asbestos shingles. This building houses the vacuum pump room for the milking machines. There are no fire extinguishers in this building.

Total floor space - 700 sq. ft.

Building No. 18 - Feed Barn #2

This is a new two-story building of fireproof construction. The second floor of concrete with exposed wood rafters and asbestos shingles. The gable ends of this barn are of wood covered with asbestos shingles.

~~There are no extinguishers in this building.~~
Total floor space - 5,400 sq. feet.

Building No. 20 - Veterinary Laboratory

This is a two-story building, exterior walls stuccoed and interior walls plastered. The first floor is well divided by plastered partitions into offices. The second floor is also well divided by plastered partitions into offices. The attic has a wood floor and exposed wood rafters covered with asbestos shingles. The attic is used for the storage of chemicals, paper and glassware. The basement is separated by fireproof partitions into rooms used for machinery. Note: All staircases in this building are of wood. There are three fire extinguishers in this building.

Total floor area, exclusive of attic - 4,200 sq. ft.

Building No. 21 - Physiological Laboratory

This is a building of fireproof construction. First floor is divided by fireproof partitions into laboratories. The second floor is a large exhibition room. The attic has a wood floor and exposed wood rafters covered with asbestos shingles. The basement is divided by fireproof partitions and is used as a hospital for the stock. There are no fire extinguishers in this building.

Total floor space exclusive of attic - 7,200 sq. ft.

Building No. 22 - Autopsy Room

This is a small one-story concrete building with wooden roof and asbestos shingles. There are no fire extinguishers in this building.

Total floor space - 300 sq. ft.



Building No. 23 - Pump House

This is a small concrete building with wooden roof covered with asbestos shingles. It houses a Fairbanks-Morse-Price Turbine pump. There are two rooms separated by a tile wall. The other room contains a switchboard. There are no fire extinguishers in this building.

Total floor space - 160 sq. ft.

Building No. 24 - Small Animal House

This is a small one-story concrete building with wooden ceiling, wooden roof and asbestos shingles. At present this building is unoccupied. There are no fire extinguishers in this building.

Total floor space - 510 sq. ft.

Building No. 25 - Temporary Bull Barn

This building was designed for a garage with open fronts. These fronts have been closed with wooden partitions. The east end of this building is divided into two garages. The rear and side walls of this building are concrete. The roof is of wood with asbestos shingles. There are no fire extinguishers in this building.

Total floor space - 3,335 sq. ft.

Building No. 26 - Bull Barn (New)

This building is as yet unfinished. It will be a two-story fire-proof constructed building with exposed wood rafters and asbestos shingles. There are no fire extinguishers in this building.

Total floor space - 7,920 sq. ft.

DESCRIPTION OF BUILDINGS

GROUP NO. 1 C. (SMITH FARM)

Building No. 50 - Young Stock Shed and Silo

This is a frame building 22 x 96 with open front. It is covered with asbestos shingles. Adjoining this building is an 18 ft. concrete Silo.

Total floor space - 2,112 sq. ft.

Building No. 51 - Hay Barracks

This is a 28 x 48 frame building roofed with asbestos shingles. It is used for storage of hay.

Total floor space - 1,344 sq. ft.



Group No. 1

WATER SUPPLY

SOURCE

There are four (4) wells on this area supplying water for this group. These wells shall be designated as Nos. 1, 2, 3, 4.

No. 1 Well

This well is located in the west end of Building No. 6, Boiler House. It has a capacity of 40 gallons per minute.

No. 2 Well

This well is located in Building No. 23, Pump House, just south of Autopsy Building No. 22. It has a capacity of 35 gallons per minute.

No. 3 Well

This well is located in south end of Milk Products Laboratory, Building No. 4. It has a capacity of 100 gallons per minute.

No. 4 Well

This well is located in Pump House, Building No. 31, at North Farm. At present, it is not connected, but it has a capacity of 20 gallons per minute.

SUMMARY

WELL NO.	LOCATION	CAPACITY			
1	Boiler House Building No. 6	40	Gallons	Per	Min.
2	Pump House Building No. 23	35	"	"	"
3	Milk Prod. Lab. Building No. 4	100	"	"	"
4	North Farm Building No. 31	20	"	"	"
	Total	195	"	"	"

STORAGE

There is a reservoir under the Mechanical Shop, Building No. 9. The approximate size of this reservoir is 65 x 30 x 8, or a total of 15,600 cubic feet. Taking a cubic foot of water as equaling 7.4805 gallons, this would give 116,695 gallons storage capacity. While the

depth of the water in this reservoir is kept at eight feet, the available head would be only seven feet, therefore the available capacity of this reservoir is 102,070 gallons.

PUMPS

Well No. 1

In a room set aside from the boiler room over No. 1 Well, there are one Gould Triplex Pump, one Demins Triplex Pump and one Myers Type deep well pump. One of the Triplex Pumps operates automatically and when it cannot supply sufficient water, the other Triplex Pump cuts in. These two pumps supply water to the pressure system. The Myers deep well pump works automatically on a float switch located over reservoir in mechanical building. This pump simply keeps water in reservoir at a constant head.

Well No. 2

In the pump house over this well is installed a Fairbanks-Morse-Price Turbine pump. This pump runs continuously 24 hours per day, and discharges into line running from No. 1 Well to reservoir.

Well No. 3

In the south end of Milk Products Lab. there is a turbine pump, the installation of which is about 90% completed. This pump can discharge enough water into the Milk Products Lab. Building to meet the demand and the balance of water is discharged into reservoir.

Well No. 4

At this well is a small Triplex pump which will take water and pump into lines supplying buildings at Group 1 A. Any excess will discharge into fire line coming from Group 1 B.

There is a Gould 6 x 8 Triplex, Motor Driven pump located in a room in the southwest corner of the Mechanical Shop, Building No. 9. This pump is used as a fire pump, and is able to boost the pressure up to 100 lbs. It takes its suction direct from the reservoir and discharges into the pressure lines. This pump is always referred to as "Fire Pump." The capacity of this pump is 300 gallons per minute.

PRESENT WATER SYSTEM

The present lines may be classified as:

1. Pressure Line.
2. Reservoir Line
3. Suction Line

See Drawing No. 2.



PRESSURE LINE

Ordinarily the two triplex pumps in Building No. 6 take their suction from No. 1 Well and discharge through pressure tank into the pressure line. The piping is so arranged that these pumps could also take their suction direct from Reservoir.

This pressure Line is a 3" line and supplies the several buildings with their water. Hydrants (3") are also located at several places on this line. The Fire Pump is connected to pressure line, and is started in case of fire.

RESERVOIR LINE

The discharge from No. 2 Well Pump runs through a pipe line connecting a line that runs from No. 1 Well Pumps to reservoir. Discharge from Pump over No. 3 Well is so piped that it supplies necessary water for Building No. 4, and the balance of water is piped to Reservoir.

SUCTION LINE

A line that runs from Reservoir to pumps in Building #6.

FIRE HOSE

There is at present 3,000 feet of new linen fire hose on order, of which 1,000 feet is now in Mechanical Shop #9, and 200 feet at Smith Farm. Following is tabulated the present distribution of hose in this group:

Location	Ft. Linen Hose (New)	Ft. Linen Hose (Old)	Ft. Rubber Hose
North Farm (Group 1 A)		300	
Mule Barn		250	
Pump House (7)			2,000
Smith Farm	200		
Mechanical Shop	<u>1,000</u> <u>1,200</u>	<u>550</u>	<u>2,000</u>
Total			3,750 Ft.
On Order	1,800		<u>1,800</u>
			<u>5,550</u>

FIRE HOSE REELS (Hand Drawn)

There are at present two hand drawn hose reels located in Building No. 7. Three new hand drawn hose reels have been purchased, but have not yet arrived. Upon arrival of new reels, one will be assigned to North Farm, and one to Smith Farm.

HYDRANT LINE

The present 3" hydrants are connected directly to the 3" pressure line supplying the different buildings with water. The original line has been added to from time to time as new buildings were constructed with the result that the pressure line now contains several bends and fittings and is unsuited for a fire line.

It is planned to connect the pipe line at Dairy Industry to the pipe line from Animal Industry, in order that each division could supply water to the other division in case of emergency. There is a question whether or not the present pressure lines could stand pressure necessary to pump water against the head from Animal Industry System.

It is therefore proposed to run an independent 6" fire line around the Dairy Industry group as shown on Drawing No. 3, connecting this line with the 6" line from Animal Industry.

This new 6" line should run north across main road to a point just east of Hay Barracks, Building No. 41. In this 6" line there should be a 6" tee and a 6" branch extended to take care of hydrants protecting Buildings 41 - 46. This new 6" line should run south to the Smith Farm Buildings 50 and 51.

As this proposed 6" line does not interfere with present pressure line, it is suggested that the present pressure line be left intact. The small 3" hydrants on this line are mostly so located that they can be used for other purposes, such as supplying water for lawn sprinkling.

This system will use approximately 6,555 ft. of 6" pipe, 32-6" fittings and 6-6" valves.

FIRE EXTINGUISHERS

Location	Anti-Freeze	Soda-Acid	Pump	Recommended changes
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Group 1B:

Building No.

1. Nutrition Laboratory & Administration Bldg.	3	3	S-A. in Nut. Lab.
2. Herdsman's Cottage	1	(Foam)	
3. Foreman's "	1	(Foam)	

FIRE EXTINGUISHERS (Continued)

Location	Anti-Freeze	Soda-Acid	Pump	Recommended changes
Group 1B: (Continued)				
Building No.				
4. Milk Products Laboratory				4 S-A
6. Boiler & Pump House				2 Foam
7. Pump House (Hose Reels)				
8. Temporary House				This building should be razed
9. Mechanical Shop		2		1 Foam - Paint Shop 1 Foam - Garage 1 S-A - Carpenter Shop
10. Maternity Barn	1			
11. Calf Barn	1			
11A Calf Barn				
11B Calf Barn				
11C Calf Barn				
12. Small Animal House		1		
13. Nutrition Barn		2		
14. Feed Barn #1	1			1 Change to Anti-Freeze; also new location.
14A " " E. Wing	1			Change to Anti-Freeze
14B " " W. Wing	1			" " "
15. Silos				
16. Scale House				
17(E) Test Barn (E)				1 Change to Anti-Freeze
17(N) " " (N)				1 " " "
17(S) " " (S)				
18. Feed Barn No. 2				1 Anti-Freeze
20. Veterinary Laboratory	3			
21. Physiological Laboratory				1 Anti-Freeze in Basement.
22. Autopsy Room				
23. Pump House				
24. Small Animal House				
25. Garage (Temporary Bull Barn)				2 Anti-Freeze
26. New Bull Barn				2 Anti-Freeze
Group 1A (North Farm)				
Building No.				
31. Pump House				
32. Calf Barn - Hay Shod		2		
33. Office		1		
34. Dairy House		1		
35. Herd Barn		1		
36. Milking Parlor				
37. Test Barn	1			
38. Scale Shed				
39. Nutrition Barn				

FIRE EXTINGUISHERS (Continued)

Location	Anti-Freeze	Soda-Acid	Pump	Recommended changes
Group 1A (North Farm) (Continued)				
Building No.				
40. Cottage (Mueller)				
41. Hay Barracks				
42. Mule Barn			2	
42E Machine Shed				
42W " "		1		
43. Quarantine Barn		1		
44. Poultry House				
45. Superintendent's Residence		2 (Foam)		
46. Superintendent's Garage				
Group 1C (Smith Farm)				
50. Young Stock Shed		1		
51. Hay Barracks				

LIGHTNING RODS

The following buildings are protected with lightning rods:

Administration (Building No. 1)
 #1 Feed Barn (Building No. 14)
 Herdsman's Cottage (Building #2)
 Nutrition Barn (Building #13)
 Silos (Building No. 15)
 Cooling Tower
 Stack.

LADDERS

During the period of new construction workmen have removed several of the fire ladders from their stations and have used them. Consequently there are only 3 fire ladders located at this group of buildings at the present time. These are located as follows:

1 - 40 Ft. Ext. hanging on West Side, Building #25
 1 - 40 Ft. Ext. " inside So. End, Building #42W
 1 - 10 Ft. hanging on West side, Building #46.



WATCHMAN SERVICE

During the day there are so many employees around that any fire should be discovered quickly, but during the night there is only one watchman who covers the entire group of buildings. He carries a clock and there are fifteen stations to punch. The distance from the North Farm Group (No. 1A) to the Smith Farm Buildings is over a mile.

His duty not only covers watching for fires, but he also has to watch the stock. If any minor trouble occurs he tries to remedy it, and if he cannot do so he has to call the proper person. This might be the Superintendent, the herdsman or mechanic.

It is difficult to determine which is his primary and which his secondary duty.

From the watchman's ticket it appears that he makes six trips a night. He visits the Smith Farm about twice a week. He uses his own car to go between Main Group "1B" and North Farm "1A".

PRESENT FIRE ALARM SYSTEM

The alarm is an electric siren placed on top of the Silo Building #15. There are four boxes (or switches) which operate this alarm. They are located as follows:

1. North Farm, on post just east of Calf Barn & Hay Shed, Building #32.
2. Superintendent Residence, Building #45.
3. Boiler Room, Building #6.
4. Silo, Building #15.

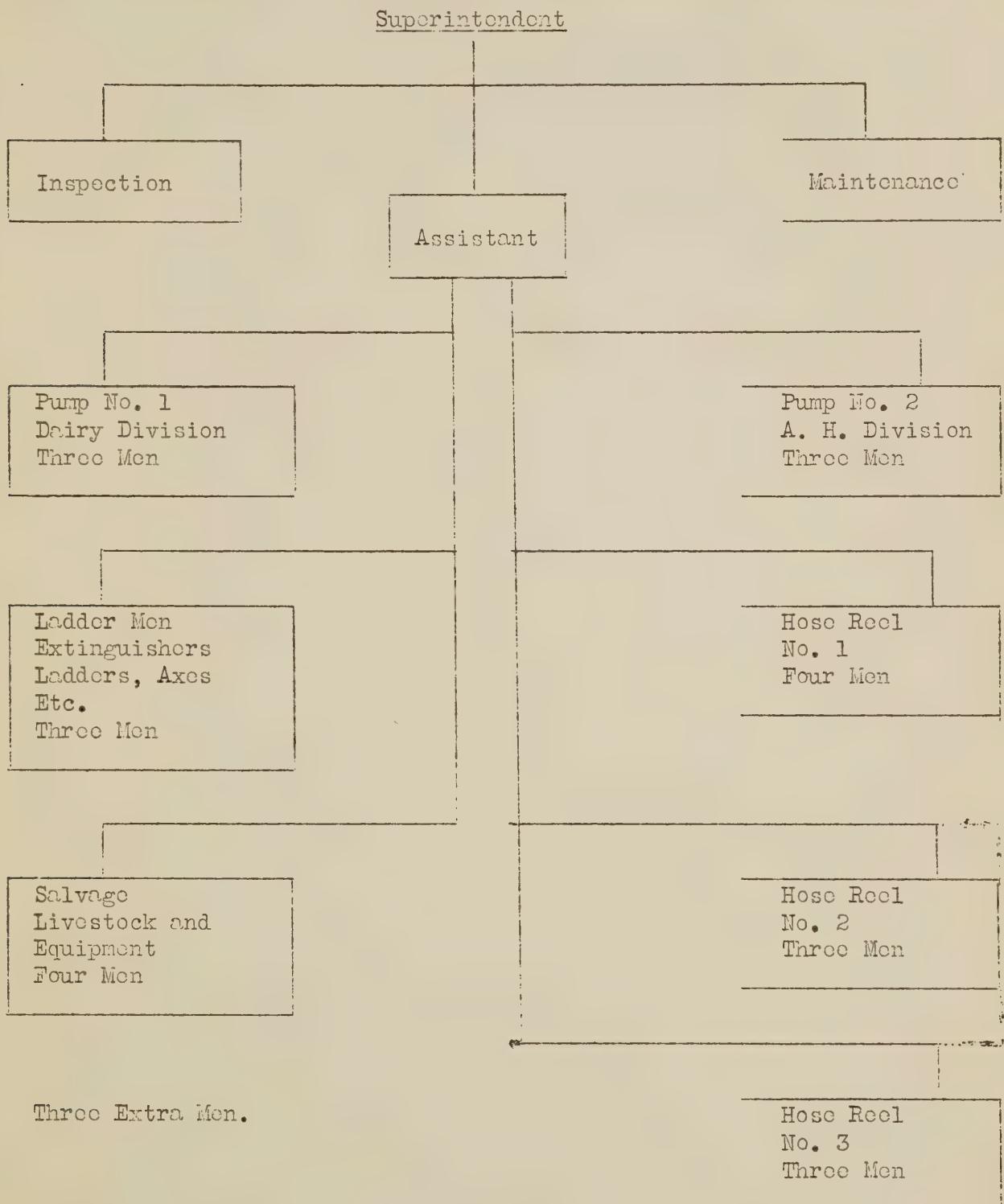
Upon closing switch at any of the above stations, siren continues to alarm until switch is again opened, or until alarm is shut off at main control in Silo.

When siren sounds there is no way of knowing from which station it was operated except "watching to see if there is any smoke visible."



FIRE ORGANIZATION

There is posted on the wall a blueprint showing the supposed organization of the men in case of fire. It is as follows:



PROTECTION AGAINST GRASS & BRUSH FIRES

Dr. A. K. Besley informed me that the C.C.C., in conjunction with the State Forest Dept., have mapped out this entire area, and are organized to handle fires which occur in this locality.

Their men are assigned certain duties, and when their alarm (a large bell) is sounded, each man reports to his station. They have several "Indian" fire fighting tanks which are carried on their backs by means of shoulder straps. Fire lanes are established around the entire camp and they can contact any fire very quickly.

GROUP NO. 2 A (See Drawing No. 5)

Central Animal Husbandry

Buildings

No. 1 Horse Barn

This is a large frame structure 40x30 with basement, 1st floor, and large loft. The basement has concrete floor and is divided into horse stalls by wood partitions.

The first floor is divided into several rooms used as storage spaces. Three horses are also kept on this floor. The floor space is covered with odds and ends piled up and stored.

The loft stores hay, straw, feed, old auto tires, cans and crates of cans, boxes of wool, etc.

In the basement are two Pyrene Extinguishers. Was informed by laborer that there were two more supposed to be there, but he did not know where they were. (Evidently taken away for recharging.)

On the first floor there is one pump type extinguisher and one Soda-acid type. In the loft at the head of the stairs there is one Soda-acid type extinguisher. The building is covered with asbestos shingles:

The following fire extinguishers are in this building:

2 Soda-Acid Fire Extinguishers
1 Pump Type "
2 Pyrene "

Total floor space including attic and basement - 9,600 sq. ft.

No. 2 Old Sheep Barn

This is a two-story building 30 x 48 with basement. The exterior walls are of brick. All interior partitions are made of wood. The building is covered with asbestos shingles. The first floor is concrete made up of heavy beams. The basement is used for storage of phosphate, and pipe fittings. The first floor is occupied by a laboratory doing wool washing and scouring. There is a coal burning heating stove located in the middle of the room. On the first floor there is a soda-acid extinguisher located in the office and one just outside office door. On the second floor there is a soda-acid extinguisher located at end of counter.

There are three soda-acid extinguishers in this building.
Total floor space - 4,320 sq. ft.

Nos. 3 and 4. Power House and Pump House

This is a building 18x55 with exterior wall of concrete blocks and a concrete roof with tar and gravel roofing. The east side of building is 18x25 and houses a large Deming 10x12 Triplex Pump driven by a 401P Foos Gas Engine. The west side of building is 18x30 and houses several pumps, an air receiver and the end of a pressure tank. There is one soda-acid extinguisher hanging on wall in front of transformer room. There should be one foam type extinguisher installed here.

There is one soda-acid extinguisher in this building. Total floor space - 990 sq. ft.

No. 6 - Nutrition Laboratory (Project #72A)

This is a new 55x260 building of fireproof construction containing three floors and attic. The exterior walls of ground floor are of reenforced concrete faced with cut stone. The exterior walls of first and second floors are made of brick. The roof is of wood construction and covered with asbestos shingles. This building is not completed.

No. 7 - Small Animal Building (Project #72B)

This is a new building under construction. It is of fireproof construction. The exterior walls of ground floor are reenforced concrete faced with cut stone. The exterior walls are brick. The roof is made of wood and covered with asbestos shingles.

Total floor area - 10,626 sq. ft.

No. 8 - Small Machine Shed

Just west of Old Sheep Barn and setting below roadway with roof approximately on level with roadway is a lean-to used as a machine shed. This building is simply a wooden roof supported on wood posts. The roof is covered with rolled paper roofing. This shed houses farm machinery.

No. 14 - Machine Sheds and Silo (Old)

Located just south of and west across road from Abattoir are two machine sheds with a concrete silo between. Each shed is 16x48 and silo is about 12 feet diameter. These buildings are made of siding nailed to studs. The lower portion of fronts are open and have ceiling over. Hay was formerly stored in the upper portions. At present the buildings are used to cover some of contractor's material. The roof is rolled paper. I understand that these sheds are to be razed. They are all out of plumb and should be torn down.

No. 15 - Machine Shed

This building is located just east of the new Nutrition Laboratory. This building is constructed entirely of wood with roof covered by paper shingles. The west end is used as an office for P.W.A. work. The balance of shed has two swinging doors in each bay. There are stored in this shed two hand drawn hose reels with 150 ft. of hose on each, and two 40 gallon soda-acid extinguishers mounted on 2-wheel hand drawn carriers. Each extinguisher is fitted with 100 ft. 3/4" rubber hose connected to extinguisher.

Pump House (Animal Industry)

This is a small brick one-story house approximately 15 x 15 with concrete floor, asbestos shingles and Cel-O-Tex ceiling. In this house is a "Pomona" turbine pump, Westinghouse induction motor drive.

Building also being used as storehouse for obsolete electric fans, and as an electrician work shop. There are shavings on floor. This place should be cleaned.

Superintendent's Office and Dwelling

The superintendent's office is located in the east end of a 2-1/2-story frame dwelling. On the first floor there are two rooms with wooden office furniture. The second floor is divided by wooden plastered partition into two offices.

There is one soda-acid fire extinguisher located on first floor.

The west end of the house is composed of six rooms - three on first floor and three on the second, and is used as a dwelling. The building is covered with a metal roof.

There are three soda-acid fire extinguishers located in this side of the building.

Old Smoke House

Just east of above dwelling there is a 12 x 12 brick building now used for storage purposes.

Water System

There is a 100,000 gallon underground reservoir located between Old Sheep Barn Building #2 and Nutrition Laboratory, Building #6. There is an air-lift which forces water from a well to reservoir at the rate of 67 gallons per minute. There are two pumps taking their suction from reservoir and pumping to a 10,000 gallon pressure tank. These pumps have a capacity of 50 gallons per minute against a 120 foot head.

This system supplies water to all buildings in this group and to the Abattoir in Group 2 D. There is a Deming 10 x 12 Triplex pump acting as a fire pump which pumps to a 3" hydrant line running through this group, Group 2B and 2D.

This system at present is independent of the new 6" main and hydrant line that covers the entire Animal Industry Section. It is the intention to tie these two systems together.

Hydrants

There is a 3" hydrant line extending throughout this area with four 3" single outlet hydrants located as follows:

One at Superintendent's Residence
Two southwest of Nutrition Laboratory
One east of Horse Barn.

There is also one 2-way 6" hydrant just east of Nutrition Laboratory. This hydrant is nearly covered up with fill. The hydrant should be "dug out" and kept clear and accessible.

Fire Hose

Located in Machine Shed, Building No. 15, there are two hand drawn hose reels with 150 ft. of 2-1/2" hose on each.

Chemical Engines

In same building there are two hand drawn 40-gallon soda-acid engines with 100 feet of 3/4" rubber hose connected to each one.

Ladders

There are no fire ladders on this area.

Extinguishers

Building	At Present			Required	
	Soda-Acid	Foam	Pyrene	Soda-Acid	Foam
Horse Barn #1	2	1 pump	1		
Old Sheep Barn #2	3				
Pump House #3 and 4	1				1
Nutrition Laboratory #6				8 (when building is completed)	
Small Animal Building #7				4 (" " " " ")	
Superintendent's Residence	4				

Alarm System

At present there is an electric siren on roof of Machine Shed #15.

GROUP NO. 2 B (See Drawings No. 6 & 7.)

Poultry Investigations

Brooder Houses

In an area north of Mill and Garage there are twenty-four 12 x 15 frame houses with roof covered with rolled roofing paper. These houses are used for brooders. In cold weather they are heated by small coal stoves.

There is one small frame building 12 x 15 situated in this group and used to store feed.

These small buildings are separated from each other by 100 to 200 feet. Five on the west side of Old Poultry road and four directly opposite on East side of Old Poultry road are not at present being used. All others contain chickens of various ages.

#1 Long House and Feed Building

Feed Building

This is a two-story and basement frame building. The basement is 16 x 35 and has concrete floor and walls and plaster ceiling. It houses several battery brooders. In the winter the space is heated by a small coal-fired stove. The roof is covered with asbestos shingles. There is one soda-acid fire extinguisher in basement.

At the head of the basement stairs there are three 50-ft. lengths of 2-1/2" fire hose and two nozzles. This hose is lying on the sill and is covered with dust. There should be a covered hose reel box made on outside of building and hose be placed in box.

The first floor is wood and divided by wooden partitions into four feed rooms. There is a wooden ceiling over part of first floor and the other part has exposed floor timbers. In addition to the 16 x 35 foot space, there is a 12 x 28 ell built on north side of building.

The second floor has wood floor and ceiling and is divided by wooden partitions. Walls are sheathed with wood.

This building houses all the feed used in the Poultry Area. While there is no grinding done here, the mixing of feed and the continual handling of bags creates considerable dust and all ledges, floors, and surfaces are covered with dust.

There are no extinguishers on the first or second floors. There should be two more soda acid extinguishers placed in this building, one on first floor and one on second floor.

If and when it is arranged to store feed in one of the new buildings, this building should be razed.

Total floor area - 2,352 sq. ft.

#1 Long House

Joining the Feed Building on the west end is a one-story frame hen house 16 x 105, with wood and wire partitions. The roof is covered with asbestos shingles.

Portable Building

About three feet directly west of #1 Long House there is a 10 x 16 frame structure covered with rolled roofing paper. This building is used as a store house.

Old Pigeon Houses

Just north of #1 Long House are two framed one-story buildings, one 12 x 16 the other 15 x 40. These are covered with rolled roofing paper. They are used as hen houses.

Storage Shed

North of the Old Pigeon Houses there is a long one-story frame structure, 20 x 108, covered with rolled roofing paper. It is divided by wooden partitions into an incubator room; storage space for crated equipment, tables, etc; lumber storage; electrician's work shop and an old hen house.

There are no fire extinguishers in this building.

Total floor area - 2,160 sq. ft.

Hose House

Three feet north of the east end of storage shed is a 10 x 10 frame structure covered with rolled roofing paper. Interior of structure is lined with plaster board. This building houses two hand-drawn 40-gallon soda-acid engines, each equipped with 100 feet of rubber hose. These tanks were charged in May 1934. There is also one two-wheel hose reel with about 200 feet of 2-1/2" fire hose. There are about 500 feet of 2-1/2" fire hose in 50-foot coils stacked in the corner of this building. There are also two kerosene lanterns.

This building and equipment should be put in order and made accessible. At present time material is piled in front of vehicles.

There should be two 2-1/2-gallon anti-freeze extinguishers in this building that would be available to use for any of the adjoining buildings.

Plumber's Shop

North of Hose House, across the driveway, is a 15 x 33 frame structure with rolled roofing paper covering roof. There is a small coal fired stove in building. There is no fire extinguisher in this building.

Total floor area - 495 sq. ft.

Garages

Just west of Plumber's shop there is a frame building 20 x 80 divided by wooden partitions into nine garages. The roof of this building is covered with rolled paper roofing. There are no fire extinguishers in this building. If this building is to remain on property, it is suggested that a Pyrene Extinguisher be installed in each garage.

Total floor area - 1,600 sq. ft.

P.W.A. Plumbers' Shop

Just west of Garages there is a 20 x 36 frame one-story building used for storage of plumbing supplies. The interior of building is lined with plaster board. The roof is covered with rolled roofing paper. There is no fire extinguisher in this building.

There should be one anti-freeze extinguisher installed in this building.

Total floor area - 720 sq. ft.

Dr. Jull's Residence.

Just east and across the road from Plumbers' Shop there is an eight-room 2-1/2-story frame dwelling with asbestos shingles. Building is heated with an oil-fired hot water boiler. There are two 2-1/2-gallon soda-acid extinguishers in this building - one in basement and one in attic.

Just south of this building there is a 6" fire hydrant. One of the 2-1/2" hose connections at hydrant has been bushed down and a 3/4" pipe line run off supplying a temporary means of sprinkling roads and lawns. This 3/4" line should be disconnected from hydrant in order that both hydrant connections could be used in case of fire.

Old Nutrition Laboratory

East of Dr. Jull's residence and located at the bend in the road there is a two-story, basement and attic frame building with asbestos shingles.

The basement has concrete floor, ceiling and walls, and is divided by concrete partitions into: Egg sorting room, Incubators, Machine room, Boiler room and Coal bin. There is a small C. I. coal-fired steam boiler supplying heat to this building.

There is one soda-acid fire extinguisher located here.

The first floor is divided into laboratories and one long main corridor. There is a maximum of one gallon of ether on hand in laboratories at all times. The floors are concrete. There are three soda-acid fire extinguishers located in corridor and one fire blanket is available.

The second floor is divided by plastered partitions into four laboratories and one office. There is a long corridor running the length of building. There is a fire blanket here. Each room is equipped with a rope fire escape and an exit and ladder is located at the north-east and southeast rooms.

There are three soda-acid extinguishers located in this corridor.

The attic is an open space with exposed roof timbers and used as a storage space. There is an electrically heated water still in the attic. A narrow wooden staircase leads to the second floor. There is a 3/4" hose connected to a water supply.

A 6" fire hydrant is located about 60 feet southeast of building and a 3" hydrant connected to old water line is located about 40 feet southwest of building.

On the southeast corner of building there is a hose-reel box containing 150 feet 2-1/2" fire hose coupled together. There is no nozzle here.

Total floor area - 4,200 sq. ft.

About 40 feet east of Old Nutrition Laboratory are three small frame poultry houses used for storage of ether and alcohol. These are to be removed when new Laboratory Building is abandoned.

New Boiler House

This is a fire resisting building 29 x 39 and 18 feet high, with walls of cinder block and stucco. The roof is concrete supported on structural steel beams.

This building is uncompleted as of May 9th 1935. When finished this building should be equipped with two foam type extinguishers.

Poultry Fattening Laboratory

This is a building with three stories and attic penthouse, constructed of cinder block stucco and plastered walls. The roof is metal covered with tar and gravel. All staircases are steel. Interior partitions are cement and plaster. This building is not finished.

Total floor area - 10,074 Sq. ft.

When finished there should be six soda-acid extinguishers installed.

Rat Laboratory

While this building is located in Poultry section, it comes under the Animal Husbandry section. When Building 72-A is completed, this building will be razed.

This is a frame structure composed of basement, two floors, and attic. It is divided by wooden partitions into laboratories, small animal rooms, offices and sterilizer room.

There is an Ideal Hot Water boiler, and a small vertical fire tube steam boiler located in the basement. Both boilers are coal fired.

The attic is used for storage.

There are two soda-acid extinguishers located on the second floor.

Fundamental Research Laboratory

This is a fire resisting building of three stories and attic. The exterior walls are cinder block, the first floor being brick faced and all other stories stucco. All floors are concrete and ceilings plastered. The roof is wood covered with asbestos shingles. All interior partitions are wood with metal lath and plaster. This building is not occupied as yet. There should be six soda-acid extinguishers installed in this building.

Total floor area - 9,520 sq. ft.

Poultry Laboratory

This is a three-story and basement fire resisting building 34x70 ft. with walls of cinder block and stucco. This building is divided into laboratory and offices by plastered partitions. The building is equipped with "Philgas" piping with generators just outside the west basement door.

Ether, alcohol and gasoline is used in laboratories. Operators know danger and every precaution is taken. Doors to rooms where ether is being distilled are kept closed and a sign placed on outside forbidding entrance.

There are four soda-acid and one foam extinguisher located as follows:

Basement	2	Soda-acid	and 1	Foam
1st Floor	1	"	"	"
2nd Floor	1	"	"	"

At the head of stairs on third floor there is a 50 ft. length of 3/4" hose attached to water supply.

The switch for operating light in main distilling room is located at fixture. This light should be controlled with a switch located in basement corridor.

There is a 50 ft. length of 2-1/2" fire hose with nozzle attached located in basement corridor.

Total floor area - 9,520 sq. ft.

Laying Houses

North of Dr. Jull's residence and west of new laboratory buildings there are six laying houses. These are frame structures 20 x 100' on concrete foundations. The roof is covered with rolled roofing paper. These buildings are separated east and west by a minimum of sixty feet, and north and south by a minimum of 380 feet.

There is a 2" water main running east and west just south of the north three houses, with 3/4" hose bib outlets. While this water line is primarily used for watering the stock, it could be used as a means of fighting fire in these houses. There should be 100 ft. 3/4" hose located at these buildings.

Poultry Houses

North of the laying houses and new laboratory buildings, there is a group of 21 breeding houses approximately 12 x 14. These houses are frame and covered with rolled roofing paper. They are separated east and west by a minimum distance of 140 feet and north and south by a minimum of 100 feet.

There is a six-inch fire hydrant located at the northeast corner of this group.

Ether Storage Shed

Ether, alcohol and benzine is kept in a small 8 x 10 frame shed located about 50 feet west of Poultry Laboratory. There should be a concrete vault constructed to store this material and this frame shed removed.

Biological Laboratory

This building is a fire resisting building 34 x 70 constructed with cinder block. The exterior of basement is faced with brick, balance of exterior wall stucco. There are two stories, basement and attic. The roof is wood with asbestos shingles. The attic space is finished with plaster ceiling and walls. All staircases are steel. Floors are concrete.

Each floor is divided by plastered partitions into four large laboratory rooms with a small room off each large room. There is also a shower room on each floor.

This building is uncompleted. Before occupancy there should be two soda-acid fire extinguishers located on each floor - a total of six.

Total floor area - 9,520 sq. ft.

Note: There is a space immediately over attic ceiling and under roof which should be ventilated.

Located east of Poultry Road and across road from New Poultry Laboratories, there are the following Buildings:

Transformer House
Laying House
Brooder House
Pigeon House, Storage and Market Poultry
Carpenter Shop
Storage Shed

Construction Shed

Just east of and in front of Biological Laboratory building there is an old frame one-story building. There is a 50-ft. length of 2-1/2 " fire hose and nozzle located in this building. This building should be removed or razed.

Transformer House

This building is a 12 x 12 concrete structure with concrete, tar and gravel roof.

Laying House

This building consists of a main house 13 x 16 with wings 15 x 68 off east and west sides. The main building is cinder block and stucco. The wings are frame construction. Entire building covered with asbestos shingles. The wings are divided by wooden partitions into several sections. This building to be heated from Central Heating Plant in New Boiler House.

There is no fire extinguisher in building. There should be one anti-freeze extinguisher installed here.

Total floor area - 2,248 sq. ft.

Brooder House

This building consists of a main house 13x16 with wings 15x68 off east and west sides. The main building is cinder block and stucco. The wings are frame construction. Entire building covered with asbestos shingles. The wings are divided by wooden partitions into several sections. This building to be heated from Central Heating Plant in New Boiler House.

There is no fire extinguisher in building. There should be one anti-freeze extinguisher installed here.

Total floor area - 2,248 sq. ft.

Pigeon House

This is a frame structure 15x54 with rolled roofing paper covering roof.

Storage Building

This is a one-story frame structure 15x15 with asbestos shingles. This building is uncompleted as of May 16, 1935.

Market Poultry Building

This is a one-story frame structure 20x48 with rolled roofing paper on roof. This building is uncompleted as of May 16, 1935.

Carpenter Shop

This is a one-story frame structure 20x100 with roof covered with asbestos shingles. It is divided by wooden partitions into a work shop, lumber storage room and hen pens. There is no fire extinguisher in this building. There should be one soda-acid extinguisher in carpenter shop.

Total floor area - 2,000 sq. ft.

Storage Shed

This is a frame structure 20 x 100 with South end open. It is covered with asbestos shingles. It is used for storage of lumber, steel pens, equipment and baled straw. There are also two cars and a truck garaged here during the day.

There is a 35-ft. extension ladder in west end of shed, and a watchman's key.

There is 6" fire hydrant just north of west end of shed.

In the yard southeast of this shed is a pile of old laying boxes. These should be removed.

Old Turkey Range

There are twelve old wooden shelters located on this plot.

Water Supply

Buildings are supplied with water from the new 6" main from 75,000 gallon water tower.

Hydrants

There are two 3" single outlet hydrants and five 2-way 6" hydrants at vantage points throughout area.

Ladders

There is one 35' Extension Ladder in Storage Shed.

Hose

There are three 50-foot lengths of 2-1/2" fire hose and two nozzles located in stairway of Feed House. There is one hand drawn hose reel with 200 feet of 2-1/2" fire hose and nozzle, and also there is 500 feet of 2-1/2" hose in 50-foot lengths stacked in corner of building.

There is 150 feet of 2-1/2" fire hose in box on southeast corner of Old Nutrition Laboratory.

There is 50 ft. of 2-1/2" hose and nozzle in basement of Poultry Laboratory.

Chemical Engines

There are two 40-gallon soda-acid hand drawn chemical engines housed in Hose House. Each engine is equipped with 100 ft. of 3/4" rubber hose.

Extinguishers

Building	At Present				Required		
	Soda-Acid	Anti-Foam	Anti-Freeze	Soda-Acid	Anti-Foam	Anti-Freeze	Pyrene
#1 Long House -							
Feed Building	1			2			
Hose House					2		
Garages						9	
PWA Plumber's Shop						1	
Dr. Jull's Residence	2						
Old Nutrition Lab.	7						
New Boiler House					2	(When bldg. finished)	
Poultry Fattening Lab.				6	"	"	"
Rat Lab.	2						
Fund. Res. Lab.				6	"	"	"

Extinguishers (Contd.)

<u>Building</u>	<u>At Present</u>				<u>Required</u>		
	<u>Soda-Acid</u>	<u>Anti-Foam</u>	<u>Soda-Acid</u>	<u>Anti-Foam</u>	<u>Pyrene</u>		
Poultry Laboratory	4						
Biological Laboratory				6			
Laying House					1		
Brooder House						1	
Carpenter Shop			1				
				21	2	5	9

GROUP NO. 2 C (See Drawings Nos. 5 & 8.)

Swine Investigations

Buildings

No. 16 - Hog Pens, Tool Shed, Scale House

About 50 feet north of Abattoir are three hog pens, a tool house and a scale house, all constructed of wood.

No. 17 - Farrowing House

(Now used temporarily as Small Animal House.)

This building has concrete floor and side walls are made of boards and clap boards on studs. The roof is wood and covered with asbestos shingles. Electric wires are in conduit. There is a small coal fired steam boiler supplying heat to this building. Part of building has an attic which is used for storage purposes. Material piled very carefully in this space.

There are 2 soda-acid extinguishers in this building.
Total floor area - 1,500 sq. ft.

No. 18 - Shelled Corn Storage Building and Grinding Shed.

Just east of Farrowing House is a 12 x 20 one-story building used for storage of shelled corn. This building is made wholly of wood and has asbestos shingles on roof. There are portable ventilating shafts made of screen which are placed at regular intervals and run from the floor to space above corn. This prevents heating of corn. There is no extinguisher in this building.

Total floor space - 240 sq. ft.

Attached to south side of this building is a 16 x 20 shed used for grinding corn and mixing feed. A small grinder is driven by induction motor. There is quite a bit of dust on motor and ledges in building.

Total floor area - 320 sq. ft.

There are several barrels of crude oil stored against the outside south wall of the Grinding Shed, and an oil trough is located on the east side of shed. This oil is used for disinfecting the hogs.

Note: There should be one anti-freeze extinguisher in this building.

No. 20 - Colony Hog Houses

There are three colony hog houses located just west of above building. These are made of wood and roofs are covered with rolled roofing paper. Also scattered throughout this section are other colony houses, well separated from each other. The danger of fire among these houses is very small.

No. 21 - Feeding House

This is a wooden building 32 x 120 covered with paper shingles. The interior is divided by wooden partitions into several pens on each side with an aisle between. There is a 3/4" water line at about the middle of this building which could be used in case of a small fire.

There is no fire extinguisher located in this building.

Total floor area - 3,840 sq. ft.

Note: There should be one anti-freeze extinguisher located in this building.

Project No. 81 A - Hog House

The main building is 32 x 40 and is a 1-1/2-story fire resisting building. The exterior walls are constructed of cinder block and stucco. The ceiling joists are wood, as are also the roof timbers. The roof is covered with asbestos shingles. This building is divided into rooms by cinder block partitions. There is an office, record room, locker room, coal room, boiler room and hospital. The ceilings over each room is plastered, but in main part of building it is of wood.

On the east side of main building is attached a structure 28' x 105'. This is a one-story portion with exterior walls of brick up to a point 4' above floor line. Balance of walls, roof, etc. is wooden with asbestos shingles. At extreme east end there are two small feed rooms partitioned off. There is a place reserved for a small grinding mill.

This building is used for breeding place, etc.

There are two 3/4" water connections for hose in this building.

There are two soda-acid extinguishers sitting on the floor in the boiler room, properly charged as of March 23.

Total sq. ft. floor area - 4,220.

Project No. 81-B Hog House

Directly east and about fifty feet south of Hog House Project #81-A there is another house of fire resisting construction. Exterior walls are cinder block and stucco. There are two rooms separated by wooden partitions from main floor space. The roof is of wood and covered with asbestos shingles.

There are five connections for 3/4" water hose in building.

There are no fire extinguishers in building.

Total floor area - 2,880 sq. ft.

Note: There should be one anti-freeze extinguisher placed in this building.

Colony Houses

Distributed throughout this area (Swine Investigation) there are about twenty 12 x 30 frame colony houses with paper shingles. There are also some ten or twelve feeding houses - a small, wooden, covered trough. As these are separated from each other by approximately 300 feet each way, they do not constitute a fire hazard.

Old Hay Barn

There is an old frame 2-story barn 24' x 27' with roof and sides covered with rolled roofing located near Radio Road which is used by C.C.C. Camp for storage of dynamite. It is kept locked at all times. At present there are two tons of dynamite stored here.

There are 2 lengths of 2-1/2" fire hose at this location, one length hanging from nail on the outside S. W. corner of building. The other is on the ground at the S.E. corner of the building. From appearance this hose is of not much value as it has laid exposed to the elements too long.

If and when the use of this building as a dynamite storage is discontinued, I would recommend that it be razed.

Note: There is a new dynamite house contemplated for immediate construction in an isolated spot 1,500 ft. from nearest building and in a natural depression.

Construction Shed

Fifty feet directly east of Hog House, Project #81-B there is a small wooden construction shed about 12 x 12. This shed should be either removed or razed.

SUMMATION

Fire Hydrants

There is one fire hydrant now located east and south of Hog House Federal Project #81-A. There is one planned, but not yet installed, at a point about 100 ft. north of Abattoir and on other side of road.

Note - It should be made certain that this latter hydrant is installed.

Fire Hose

With the exception of two 50 ft. lengths of old hose now at Old Hay Barn, there is no fire hose on this area.

There should be 100 ft. of 2-1/2" fire hose with one 1-1/8" smooth bore nozzle assigned to Hog House #81-B.

There should be 100 ft. of 2-1/2" fire hose with one 1-1/8" smooth bore nozzle assigned to box on west end of Farrowing House, Bldg. #17.

Fire Extinguishers

There should be three (3) more anti-freeze fire extinguishers located in this group.

Fire Ladders

There are no ladders on this group area. Would suggest that four 15-foot, ladders be secured, painted a bright red and be definitely located at following places:

- 1 at Building Project #81-C
- 1 at Building Project #81-A
- 1 at Farrowing House #17
- 1 at Feeding House #21

These ladders should be used only in case of fire and should at all times be in their designated locations.

Alarm System

This will be considered later with the entire Research Center.

Watchman Service

This group is covered by watchmen who also patrol Animal Husbandry Group.

Water Supply

This group is served by 6" main from 75,000 gallon water tower.

GROUP NO. 2 D

Meat Investigations (See Drawing No. 5.)

Buildings

No. 9 - Mr. Sehorn's Office

This is a one-story cinder block building stuccoed on exterior and plastered on inside. It was originally a head house for greenhouses. There is a wooden roof covered with rolled paper roofing. This building is used as an Engineer's Office. There is no fire extinguisher in this building. There is need of one here, as blue prints and records of the entire area are on file, and the building is heated with a coal burning stove. There should be an extinguisher in case of a spark or a hot coal falling out of stove onto floor.

No. 10 - First Aid Building

This is a one-story building of frame construction. Novelty siding is nailed directly on studs. The roof is covered with rolled roofing paper. This building is not used at present.

No. 11 - Autopsy Building

This is a one-story brick building 15 x 22 with concrete floor and wood roof. There are no fire extinguishers located in this building.

Total floor area - 330 sq. ft.

No. 12 - Incinerator

This incinerator is 7 x 15 and is located just east of Abattoir. It is connected to radial brick stack.

No. 13 - Abattoir

This is a two-story building with brick outside walls. The basement is constructed of reenforced concrete. The second floor is wood and is supported by steel beams with wood headers between. There is a small Economic Type boiler in basement, with necessary pumps, etc. The first floor is used for slaughtering and also has refrigerated rooms. On the second floor is a chemical laboratory. Small quantities of ether, alcohol and benzine are used. Chemist knows danger and uses every precaution. In the laboratory is a soda-acid fire extinguisher, blankets, and a bucket of sand.

Total floor area - 6,062 sq. ft.

No. 19 - Some kind of a Hog House (Dr. Buckley's)

This is a one-story building approximately 12 x 35 with wooden siding on wood studs. There is a wood roof covered with rolled roofing paper. There is a small coal fired steam boiler, and scales for

weighing hogs. There is one soda-acid extinguisher located on bench on northeast side of room.

Total Floor Area - 420 sq. ft.

No. 23. - Mill and Garage

The part designated as "Mill" is a building whose sides and roof are of galvanized corrugated iron on wooden studs and rafters. This building houses wood working machinery. It is used primarily by P.W.A. carpenters. There is no floor in building.

On the northwest corner of outside wall is located a fire hose box with five lengths of hose. There is a hydrant directly across the road.

Shavings are gathered up and bagged.

There is one soda-acid fire extinguisher in building.

Attached to the east end of Mill is a frame building used as a blacksmith's shop and machine shop. It has a wooden roof covered with roofing paper. There is no fire extinguisher in this section. Attached to this blacksmith's shop is the garage. This is a frame building with open front. It has a galvanized corrugated iron roof. In an office at rear of this garage there are six fire extinguishers - 3 soda-acid extinguishers and 3 Foam Extinguishers.

Total floor area - approximately 3,500 sq. ft.

No. 22 - Oil Shed

This is a small shed 10 x 15 with galvanized corrugated iron sides and roof. It is used for storage of oil in barrels. It serves the garage located directly northwest. There is no extinguisher here.

(Note: See fire extinguishers in garage.)

Total floor area - 150 sq. ft.

SUMMATION

Water Supply

This area is served from 3" pressure line.

Hydrants

While there are no hydrants in this area, the installation of hydrant recommended for Group 2C would also cover the needs of this area.

Extinguishers

<u>Building No.</u>	<u>At Present</u>		<u>Required</u>	
	<u>Soda-Acid</u>	<u>Foam</u>	<u>Soda-Acid</u>	<u>Foam</u>
Building #9			1	
Building #13	1			
Building #19	1			
Building #23	3	3		1

Ladders

There are no ladders in this area.

Fire Hose

There is 150 ft. of 2-1/2" fire hose in box on west side of Mill, Building #23.

Watchman

This area is covered four times every eight hours by watchman carrying clock.

GROUP NO. 2 E (See Drawings Nos. 9 & 10.)Sheep InvestigationsSheep Barn

Main Barn is a two-story structure 40 x 84 with walls of brick and brick gable ends. The roof is wood covered with asbestos shingles. The second floor is wood, and this floor is divided by wooden partitions into four rooms; viz, 2 wool storage rooms and 2 feed rooms; and the balance of space is used for grain storage. There is a wooden stair case. The first floor is divided into office, shepherd's room, 2 feed rooms and boiler room. With exception of boiler room partition which is cinder block, all other partitions are wood. There is a small coal fired steam boiler in boiler room.

There are two rooms one on east and one on west side of main building. The one on the east is the shearing room. That on the west is the scale room. Off these rooms is a 36 x 100 shed both on east and west sides. The north wall and end walls are of cinder block and the south sides are open. There is a wooden roof covered with asbestos shingles.

There are three soda-acid extinguishers in building and several 3/4" water connections for hose.

There are no fire ladders. Would recommend one 40-ft. extension ladder and one 15 ft. ladder with ladder hook be secured for this location.

These ladders should be painted a bright red, hung in designated places and used only in case of fire.

There is no fire hose at this building. The water pressure is exceedingly good at this barn and there are several 3/4" hose connections throughout building. Would suggest that two 50-foot lengths of 3/4" rubber hose be secured and so located as to be ready for attachment in case of fire.

Total floor area - 13,920 sq. ft.

Fire Hydrant

There is a fire hydrant located about 200 ft. south of Sheep Barn. This would serve both Sheep Barn and dwelling located south of Sheep Barn.

Fire Hose

There should be a small hose house erected near hydrant and 300 ft. of 2-1/2" hose line permanently housed here. As the pressure in water line at this point is approximately 75 pounds per square inch, the hose would deliver a fair size stream with which to fight any fire.

Sheep Shelters

In the field north of Sheep Barn are three wooden sheep shelters. These are open on all sides with wooden roof supported by wooden posts. Roof is covered with paper shingles. They are approximately 20' x 60'. These are used for shade for sheep.

Dwelling

South of the Sheep Barn is a 2-1/2-story frame dwelling with metal roofing used as residence. At same place is a frame barn about 40 x 100, wooden garage and scale house. With exception of dwelling, all buildings are roughly constructed and in poor shape. There is hay, fodder corn, and odds and ends stored in barn. This barn and out-buildings constitute a serious fire hazard and should be razed.

Forage Crops Building

Situated south of Horse Barn (Animal Husbandry) is a building 20 x 30 constructed of cinder block, with wooden ceiling and roof and covered with asbestos shingles. There are two rooms partitioned off with cinder block. The floor is concrete.

This building is used to experiment with forage crops and also garages one truck and a gasoline driven lawnmower. There is no fire extinguisher in this building.

There should be one soda-acid extinguisher installed in office of building.

Total floor area - 600 sq. ft.

Construction Office

South of Forage Crops Building there is a 16 x 16 frame one-story building used as a construction office.

GROUP NO. 2 F (See Drawing No. 11.)

Beef Cattle Investigation

Main Barn - Open Shed and Nutrition Barn

This is a building with the Open Shed and Nutrition Barn all attached to each other. The main barn is a two-story building with exterior wall of cinder block and stucco, wooden roof structure and roof covered with asbestos shingles. Gable ends are of cinder block. There is a driveway transversely through the main building and closed at each outside wall by sliding doors. The second floor over this driveway is left open. This arrangement allows a load of hay to be driven in barn under cover and hoisted to loft. The second floor is wood. There is a small grinding mill on first floor driven by an induction motor. Part of the ground feed is blown and part hoisted by elevators, to bins on second floor. There are two metal dust collectors in loft, but there is also an accumulation of dust on ledges. The grinder motor is covered with about 1/2 inch of dust, and the grinding room is dirty and dusty. This equipment should be kept clean. Hay is stored on second floor. All partitions, ceilings and staircases are made of wood.

Joining the main barn on the west is an open shed 26 x 101 with back wall made of cinder block and stucco. Posts, roof, and all stalls made of wood. Flat roof with tar and gravel.

Joining the main barn on the east is a one-story Nutrition Barn with cinder block walls and stucco. This building is 36 x 97, with wood roof and asbestos shingles.

There are two soda-acid fire extinguishers located in center portion of main barn.

Total floor area of entire Barn - 14,830 sq. ft.

Office

A one-story building 25' x 28' of cinder block and stucco, with fire resisting partitions separating rooms. There is a boiler room with a small hot water heater and a small verticle fire tube steam boiler. There is no ceiling over boiler room, the floor joists being exposed. There should be a metal ceiling installed.

There are no fire extinguishers in this building.

Total floor area - 700 sq. ft.

Note: There should be one soda-acid fire extinguisher located in boiler room.

Bull Barn

This is a new barn 36 x 60 with walls of cinder block and stucco. In the west end of barn are two feed rooms with wooden partitions. The south room has about 10" of hay over floor. The ceiling and roof is wood. The roof is covered with asbestos shingles. There are no ladders, extinguishers nor hose at this building.

There is a fire hydrant located west of bull barn. This fire hydrant is behind a wire fence and suction outlet faces away from road. This hydrant should be moved south about four feet and rotated 180° so that suction connection faces road.

Total floor area - 2,160 sq. ft.

South of Bull Barn there is a small frame dwelling, garage, and about five sheds. All of these should be razed as they constitute a fire hazard for the Bull Barn.

Also on this area is an uncompleted log lodge with logs stored nearby, and construction sheds located near lodge.

GROUP NO. 2 G (See Drawing No. 12.)

Horse Investigation and Machine Shed

Horse Barn

This building is a 42' x 102' two-story fire resisting building constructed of cinder blocks and stucco. The second floor is wood, the roof structure wood and the roof covered with asbestos shingles. The first floor is divided into several wooden stalls. The ceiling is covered with sheet metal. The second floor is used for hay storage.

The building is not fully completed and is unoccupied.

There are no extinguishers located in this building.

There is a 6" water line running to a point about 50 ft. north of the end of barn and connected to a fire hydrant.

Total floor area - approximately 8,568 sq. ft.

Note: There should be two anti-freeze type extinguishers, and 100 ft. 2-1/2" fire hose located at this barn when it is finished and occupied.

Machine Shed

This is a one-story U-shaped, fire resisting building with exterior walls of cinder block and stucco. The center portion is divided by cinder block partitions into a boiler room and other small rooms. The

roof is metal sheathing supported by structural steel trusses and covered with tar and gravel.

The building is uncompleted and unoccupied. When finished it will house tractors and farm implements.

There are no extinguishers now in building.

There is a 6" water line running to a hydrant located at a point about 50 feet west of building. There is also one length of old fire hose on the ground in court between wings.

Total floor area - 9,164 sq. ft.

Note: There should be 3 soda-acid fire extinguishers installed in this building when completed. There should also be located at this point 200 ft. of 2-1/2" fire hose.

GROUP NO. 2 H (See Drawing No. 13.)

Goat Investigation

Buildings

This group consists of one goat barn and one shed.

Goat Barn

The main building is a two-story fire resisting structure with a one-story wing on each side. The exterior walls of the main portion of building are made of brick with gable ends of brick. The walkways inside building are concrete and balance of floor is dirt. There is a wooden ceiling on first floor. The first floor is divided into different rooms by cinder block partitions. The goat stalls are made of wood. The second floor is wood, the roof structure is wood and the roof is covered with asbestos shingles. This second floor is divided by wooden partitions into an office, a feed room, and a hay storage loft.

Both wings are constructed with cinder blocks. The floors are concrete and the roof structure is wood covered with asbestos shingles. Goat stalls are made of wood.

All electric wires are in conduits. There are two wooden lean-tos against the east side of building. The lean-tos should be removed.

There are no fire extinguishers in this building.

The building receives its water supply from a 2" service running approximately 800 ft. from the end of the 6" water line.

Total floor area - approximately 3,752 sq. ft.

Buck Shed

There is a 10 x 16 wooden shed located east of main building which is used as a buck shed. This shed is about 400 feet from main building.

Note: There should be three anti-freeze type fire extinguishers located as follows:

- 1 - West End of Main Barn, 1st Floor
- 1 - East End of Main Barn, 1st Floor
- 1 - Top of stairway, 2nd Floor, Main Barn.

GROUP NO. 2 K (See Drawing No. 14.)

Dual Purpose Cattle Investigation

(Hayden Farm)

Tentative numbers have been given to the buildings in this group as follows:

- (1) Mr. Kennedy's Residence
- (2) Wash House
- (3) Former Milk Room and Office
- (4) Machine Shed
- (5) Milk Room, Office and Boiler Room
- (6) Main Barn
- (7) Bull Barn
- (8) Quarantine Barn
- (10) Horse Barn
- (11) Old Bull Barn
- (12) Transformer Building
- (13) Old Single Men's Quarters
- (14) Implement Shed
- (15) Feed Room and Cribs
- (16) Shop
- (17) Old Tobacco Barn
- (18) Calf and Young Stock Barns
- (19) Old Residences
- (20) Old Pump House

Building No. 1 - Mr. Kennedy's Residence

This is a 2-1/2 story frame house 39 x 33 with wooden shingles. There are framed partitions separating rooms. The roof is in poor condition with wooden shingles rotted and curled. There is a hot water boiler, oil fired, supplying heat to house.

There are two soda-acid extinguishers in house.

This house should be reshingled with fire resisting material.

There should also be a foam extinguisher placed handy to use in case of oil fire around heater.

Total floor area - 2,574 sq. ft.

Building No. 2 - Formerly Wash Room

This is an old 1-1/2 story frame building with wood floors and roof, and wood shingles. The building is 15 x 36. One end is used as a garage.

There is no fire extinguisher in building.

Total floor area - 540 sq. ft.

Recommend that this building be razed.

Building No. 3 - Formerly Milk Room

This is a 14 x 14 building with walls of concrete block, plastered on inside. The roof is wood and covered with wooden shingles. This building is now used as a store house.

There is no fire extinguisher in this building.

Total floor area - 196 sq. ft.

Building No. 3 A - Formerly Office

This is a 14 x 14 frame building with wooden shingles and floor. It is used as a "catch-all".

There is no fire extinguisher.

Total floor area - 196 sq. ft.

Would recommend building be razed.

Building No. 4 - Machine Shed

This is a frame structure 30 x 117 with metal roof and dirt floor. Part of front is open. In the west end there are four wooden partitions. This building is out of plumb and in poor shape generally. Would suggest that it be razed.

Building No. 5 - Milk Room

This is a new building F. P. #42. It is a small one-story building with cinder block walls and stucco. Walls are also plastered on inside. The roof is wood with asbestos shingles. The building is divided by fire resisting partitions into an office, boiler-room and milk room. There is a small tubular boiler which is coal fired.

There is no fire extinguisher in building.

There should be one soda-acid extinguisher placed in this building in boiler room.

Building No. 6 - Main Barn F.P. #42.

This is a new building 35 x 108, with cinder block walls stuccoed and plastered and cinder block gable ends stuccoed. The first floor is used for housing the milk herd. There is a wooden ceiling over first floor. The second floor is wood with wood roof covered with asbestos shingles. This floor is used for hay storage. There is a concrete silo at rear of barn. There are two extinguishers in this building.

Total floor area - 6,300 sq. ft.

Building No. 7 - Bull Barn F.P. #41.

This is a new building with walls of cinder block and stucco, wood roof and asbestos shingles. The first floor is divided into wooden stalls. The second floor is used for hay storage. There are no extinguishers in building.

NOTE: There should be 2 anti-freeze extinguishers placed in this building.

Total floor area - 1,800 sq. ft.

Building No. 8 - Quarantine Barn

This was originally a hog house, but has been made over into a Quarantine Barn. It is 30 x 100. Walls and floor are concrete. The roof is wood covered with metal roofing and the gable ends are wood. The floor space is divided into concrete stalls, hospital, and wash room.

There are no extinguishers in this building.

Total floor area - 3,000 sq. ft.

NOTE: There should be one anti-freeze extinguisher placed in this building.

Building No. 9 - Feed Room

This was originally a feed room for the hog house. It is now used for storage space.

The building is 20 x 20 with concrete walls half way up the sides, balance of structure frame.

NOTE: This building should be razed.

Building No. 10 - Horse Barn

This is a frame building 40 x 60 with metal roof. There are wood

stalls on first floor. The second floor is wood and is used for hay storage.

There is a 40-Gal. Hand Drawn Engine stored on first floor.

Would recommend this engine be stored in a fire resisting constructed building.

There are no hand extinguishers in this building.

NOTE: There should be 2 anti-freeze extinguishers place one in each end of barn. The hose on 40-gal. engine should be replaced with new.

Total floor area - 4,800 sq. ft.

Building No. 11 - Old Bull Barn

This is an old frame building with metal roof. It is not used and should be razed.

Building No. 12 - Transformer Building

Formerly old smoke house. A concrete building about 12 x 12.

Building No. 13 - Single Men's Quarters

This is an old frame building now used for a Poultry House. Would recommend this building be razed.

Building No. 14 - Implement Shed (Old)

This is an old frame structure and should be razed.

Building No. 15 - Feed Room and Cribs

There are four circular metal cribs, two on each side of a small frame building used as Feed Room. Feed Room has metal roof.

Building No. 16 - Shop

This is an old frame building with metal roof. At present in one portion is housed a small feed grinder. This is only a temporary arrangement.

This building should be razed.

Building No. 17 - Tobacco Barn (Original)

This is a frame building with metal roof. It is now used to store hay, plows and everything.

This building should be razed.

Buildings No. 18 - Barns

There are two frame barns 40 x 60, adjacent to each other. They have a metal roof. One is used as a calf barn and the other as a young stock barn. The second floor is used for hay storage.

There are no extinguishers in buildings.

There are two concrete silos in rear of barns.

Total floor area each barn - 4,800 sq. ft.

NOTE: There should be 4 anti-freeze extinguishers (2 in each building) placed in these buildings.

Buildings No. 19 - Old Houses, etc.

There are two old frame dwellings on the south side of road in the field that should be razed. East of present water tower is an old 4 room dwelling now occupied by Sam Woods. This should be razed. There is also an old wooden water tower that should be razed.

Buildings No. 20 - Hall Farm

A 4-room frame dwelling, barn, etc. at present occupied by a farm hand. This group wholly unprotected. There should be two soda-acid fire extinguishers placed in this dwelling, if group not razed.

Water Supply

The present water supply is taken from a well producing 12 gallons per minute. There is a gasoline motor driven Myers Deep Well pump working on this well and pumping through a 1" discharge line into the new 6" main. This 6" main extends through the farm and runs approximately 1,800 ft. toward new steel water tower. At this point the 6" pipe gave out and the balance of approximately 130 feet was laid with a temporary 2" line to tower.

While this arrangement takes care of daily requirements, it would be insufficient in case of an emergency such as a fire.

There is a new well drilled and cased, and a new pump, drive and pump house is contemplated in the near future.

The new steel tower has a capacity of 50,000 gallons and the elevation of bottom of tank is 270 ft. The elevation of the Superintendent's residence which is at the highest site of this group is 190 ft. Therefore, there would be a head of 80 feet (or 34 lbs.) on the water line at this point.

As this farm is isolated so far away from any of the others, I believe that the 6" water line and new pump installation should be one of the first things to complete. If this work cannot be completed



immediately I would suggest that the 1" temporary discharge from the present pipe be changed to a 2" line.

There are two old wooden towers over present pump house. These not only form a fire hazard but are dangerous to life and limb. There is no water in tanks and they are shrinking. They might be blown apart by a good stiff wind and flying parts injure anyone in vicinity. These should be razed immediately.

SUMMATION

Fire Hydrants

There are three (3) 6" 2-way hydrants located at this farm, one located west of Superintendent's residence, one between New Bull Barn and Herd Barn, and one south of Calf and Young Stock Barns.

There should be another hydrant located near roadway just north of Calf and Young Stock Barns.

Fire Hose

This group should have an additional 400 feet of 2-1/2" fire hose which should be distributed as follows:

200 ft. near hydrant between Bull Barn and
Herd Barn.
200 ft. near Young Stock and Calf Barns.

Fire Extinguishers

There should be 3 more soda-acid type 2-1/2 gallon extinguishers, 9 more 2-1/2 gallon anti-freeze extinguishers and one foam extinguisher located in this group.

Ladders

There should be two 40 ft. extension ladders and four 15 ft. ladders located at various points about the farm buildings. These ladders should be painted a bright red and kept in specified places and used only in case of fire.

Alarm System

This will be considered later with the entire Research Center.

Watchman Service

During the night there is no watchman on farm. I believe that some arrangement could be made where a man could be detailed as a "working watchman". In other words, there are certain duties that could be carried out at night by this man and he could also make periodic trips over the farm checking against fires.

To control any fire occurring at night at this farm it would be necessary to catch it early, as the only person around the farm is the Superintendent. The nearest help would be from a farm hand who lives one-half a mile away.

Group No. 3 (See Drawing No. 15)

PATHOLOGICAL DISEASE RESEARCH UNIT

Building No. 1 - Laboratory Building

This building is a two story, basement and attic fire resisting structure with exterior walls of cinder block faced with red brick. Every fifth course of brick acts as a tie and runs through the wall tying cinder blocks. The roof structure is wood covered with slate. All sash are steel. Doors are wood.

Attic

The floor of attic is concrete and staircase leading to second floor is concrete, and closed off by plastered partitions and wooden door. This space to be used for storage.

Second floor

The floor is concrete with some rooms having linoleum covering on floor. All walls and ceilings are plastered. There is a long corridor down center of building with laboratory rooms on both sides. There is a toilet with provisions for a shower. About center way of corridor on the south side there is a fire hose rack and standpipe valve and fifty feet of 1-1/2" fire hose.

First floor

The first floor is laid out similar to the second with the exception that there are two exits to the outside, one on the north side and one on the south side of building. There is a standpipe outlet in the middle of the south wall, but there is no valve, hose rack or hose at present located here.

Basement

The basement has a long corridor in center with rooms partitioned off both sides with cinder block. Floors and ceilings are concrete. There is a standpipe connection with valve, hose rack, and fifty feet 1-1/2" hose located in center of corridor south wall.

The boiler room is equipped with two C. I. hot water boilers for heating, one small vertical fire tube H. P. steam boiler for sterilizers and one pressure tank and vacuum pump. Boilers are coal fired. The laboratories are piped to use Philgas. The cylinders will be placed outside of building.

This building is not occupied as yet.
Total floor area - 14,240 sq. ft.

There are no fire extinguishers in building.

Note:- There should be eight 2-1/2 Gallon soda-acid fire extinguishers (one on each floor) located in this building.

Old Lumber

Just north of Laboratory Building there is some old construction lumber scattered around. This, if planned to be used again, should be neatly piled in one place.

Stone Building

About 100 feet west of Laboratory Building there is an old one-story 16 x 16 stone building with a wooden lean-to against the west side. Building is covered with corrugated roofing. If it is planned to keep this building on location, it could be made into a storage room for ether, alcohol and other non-freezing hazardous substances, used in Laboratory Building. The wooden lean-to should be razed.

SMALL ANIMAL HOSPITALS

Buildings Nos. 2, 3, 4 and 5.

These buildings are all alike and are 27 x 48 with walls of cinder block with red brick veneer. The wooden rafters are plastered and form the ceiling for these buildings. The floors are concrete. There are steel posts supporting roof, which is covered with slate. Two of the buildings are to be heated with steam radiators and two are to be heated with unit heaters. All animals are to be housed in steel cages on steel shelving. The only combustible material in these buildings will be the straw litter in bottom of cages and two wooden doors. There is an exit at both east and west ends of buildings.

Total floor area in each building - 1,296 square feet.

These buildings are as yet unoccupied and have no fire extinguishers and there is no need of any.

POST MORTEM BUILDING

Building No. 6

This building is constructed of cinder block with brick veneer walls, wooden roof structure covered with slate. The building is 25 x 50.

The floor is concrete and there is a toilet, closet and refrigerator room partitioned off with cinder block and plaster partitions. The ceiling is made of fibre board.

Total floor area - 1,250 sq. ft.

This building is unoccupied and has no fire extinguisher. There should be one 2-1/2 gallon soda-acid extinguisher located in this building.

Men's House #8

This building is a one-story "T" type frame building with plastered interior walls and partitions. The roof is covered with slate. There is a small coal fired hot water boiler used for heating building. The building is used at present to house administration staff.

Total floor area - 1,443 sq. ft.

There is one 2-1/2 gallon soda-acid fire extinguisher with last charging date of 1930. This extinguisher was located behind some office equipment. It should be recharged and placed in an accessible location. There should be one more soda-acid extinguisher installed in this building.

Construction Shed

There is a frame construction shed just north of Men's House. It is planned to use this for future new work.

STORE HOUSE

Building No. 9

This is a two-story building with brick walls, wood roof structure and slate roofing. The first floor is concrete and the second floor is mill construction with plank floor. There will be one pump tank for kerosene and one for oil located on first floor. On the second floor there are several metal barrels with covers used for storing poisonous plants. These are dry and combustible, but the metal containers reduce the hazard.

Total floor area - 2,400 sq. ft.

There should be two 2-1/2 gallon anti-freeze extinguishers located in building.

There are 2 fifty-foot lengths of old 1-1/2" fire hose on first floor.

HAY BARN

Building No. 14

This building is 30 x 100 and constructed with walls of cinder block, wood roof structure and slate roofing. There is a dirt floor. Building will be used for storage of baled hay. At present there is

some baled hay stored here, and a mill for carpenter work occupies one end of building.

Total floor area - 3,000 sq. ft.

There are no fire extinguishers in building. There should be one anti-freeze fire extinguisher located in this building.

IMPLEMENT SHED

Building No. 16

This is a frame structure 22 x 70 with west end open. A small part of roof is covered with slate, but the main part is covered with rolled roofing paper. There is no fire extinguisher located here.

LARGE BARNs (10)

Buildings Nos. 19, 20, 22, 23, 24, 25, 26, 27 and 28 and 17.

These barns are all of same size and construction with walls of cinder block, wooden roof structure and slate roofing. All sashes are steel, doors wood and floors concrete. The interior is divided into stalls made of wood. There are three of these barns located north of "Upper Road", one south of "Upper Road," and six south of "Lower South Lane," and east and west of "South Road."

Total floor area of each barn - 1,566 sq. ft.

There are no fire extinguishers located in these buildings. There should be one anti-freeze extinguisher in each barn.

ANTHRAX BARN

Building No. 29

The main building is 30 x 55 and constructed with cinder block walls; wood roof structure and slate shingles. There is a concrete floor extending beyond main building some 30 feet. On this extended concrete slab and adjacent to main building there are two small frame buildings.

Total floor area - 1,950 sq. ft.

There are no fire extinguishers in building. There should be two anti-freeze extinguishers located in this building.

ISOLATION STABLES

Buildings Nos. 45 - 56, inclusive.

There is a row of six stables on each side of "Fourth Lane". These are 16 x 20 frame buildings with concrete floors and paper shingles. There is a water service line running down "Fourth Lane" in front of these buildings. See "Fire Hydrants."

SWINE PENS

Buildings Nos. 59-1 to 59-30, inclusive.

South of "Upper Road" and opposite "Third Lane" there are two rows of 15 swine pens. These are frame structures about 4 x 6. There are also 4 6 x 8 feed houses.

The chance of fire in this group is very little and, therefore no particular equipment is needed.

PULP HOUSE

Building No. 60

A small cinder block building, 18 x 18, houses a motor driven Deming Deep Well Pump. This well was calibrated and showed a capacity of 44 gallons per minute for 24 hours. The pump has a capacity of 30 gallons per minute. It is anticipated that a new pump will be installed here.

Water Tower No. 61

The capacity of this steel tower is 50,000 gallons.

Foreman's Cottage

This is a 18 x 39 two-story, six-room cinder block and brick dwelling with slate roof. It is uncompleted.

Superintendent House

This is a 34 x 42 two-story, six room cinder block and brick dwelling with slate roof. It is uncompleted.

Construction Sheds

There are two frame construction sheds located in the vicinity of the Foreman's Cottage and Superintendent's House. These are being used during construction. There should be one soda-acid 2-1/2 gallon extinguisher located in each shed.



SUMMATION

Fire Hydrants

There are five 6" 2-way hydrants located in this area as follows:

1. About 66 ft. due west of south side of Laboratory Building.
2. About 20 ft. north of and 19 feet west of Northwest corner of Men's House.
3. At the northwest corner of junction of Upper Road and First Lane.
4. At the northwest corner of junction of Upper Road and Second Lane.
5. About 90 feet due north of northeast corner of barn No. 26.

All hydrants with exception of No. 2 have 2 2-1/2" outlets with one 6" suction connection.

On No. 2 hydrant, one 2-1/2" outlet has been bushed down to 1-1/2".

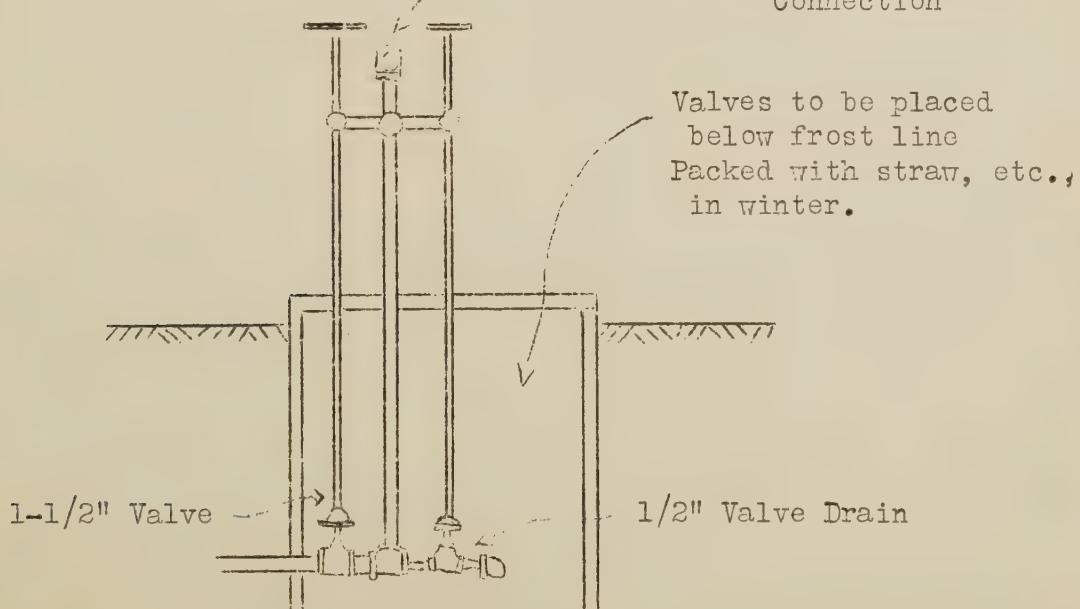
It is recommended that this 1-1/2" bushing be removed and all hydrants be standardized for 2-1/2", thereby requiring only one size of fire hose.

It is also recommended that an additional hydrant be installed at a point approximately halfway east and west between Superintendent's House and Foreman's Cottage.

It is further recommended that three 1-1/2" pipe hydrants as per sketch be installed on service line running in front of Isolation Stables at the following points:

1. Halfway north and south between Barns No. 51 and No. 52.
2. Halfway north and south between Barns #53 and #54.
3. Halfway north and south between Barns #55 and #56.

Bushed up for 2-1/2" Five Hose Connection





Fire Hose

There is no 2-1/2" fire hose for this area. It is recommended that a hand drawn hose reel with 300 ft. of 2-1/2" hose be located at Implement Shed. There should be an extra 200 ft. of 2-1/2" Hose located in storehouse for emergency. There should also be two 1-1/8" smooth bore nozzles.

Fire Extinguishers

Following is a tabulated summary of extinguishers:

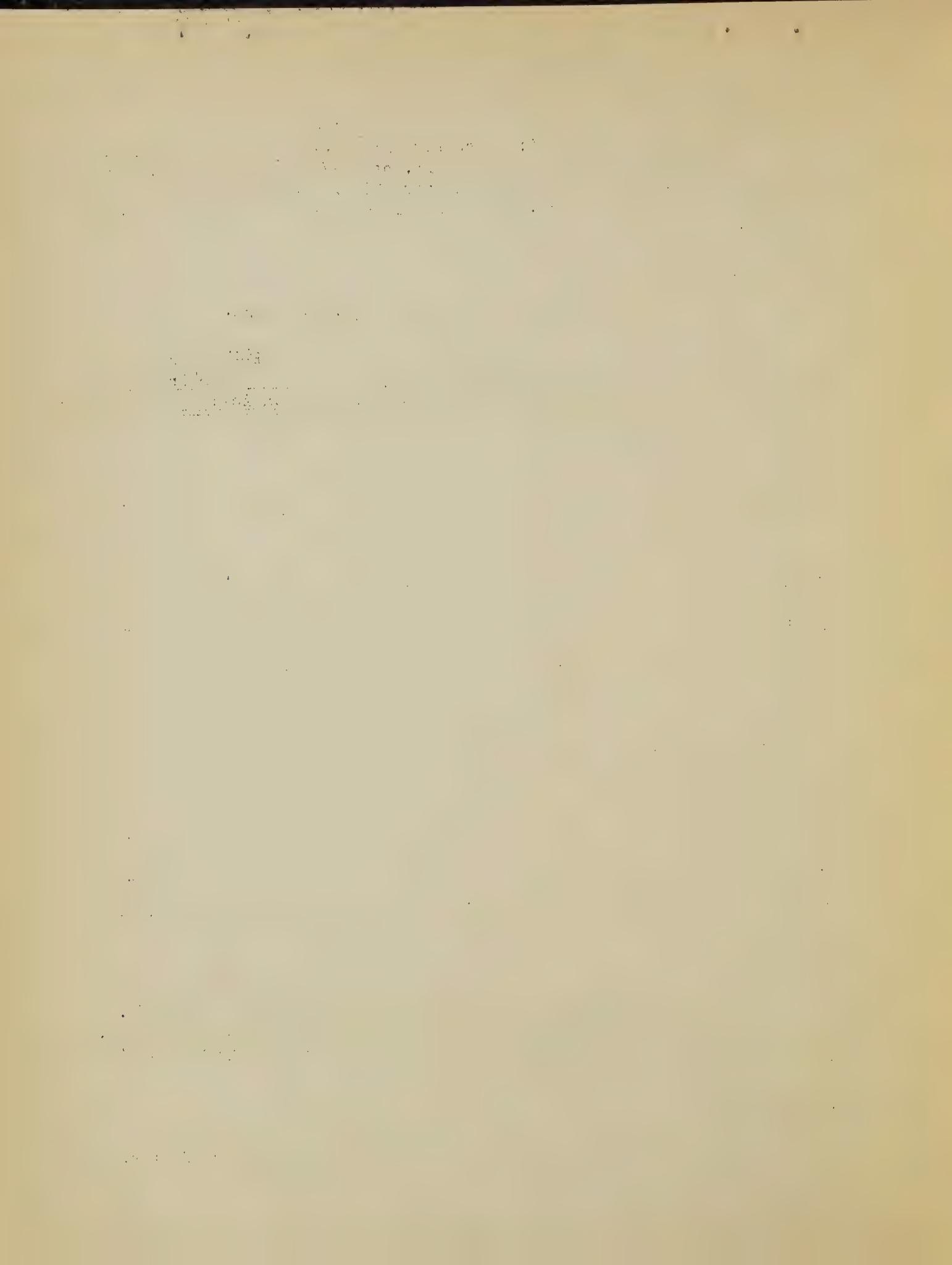
Buildings	Extinguishers at Present		Extinguishers Required	
	Soda Acid	Anti-Freeze	Soda Acid	Anti-Freeze
Laboratory Bldg. #1	None	None	4	None
Small Animal (2				
Hospital (3	"	"	None	"
(4				
(5				
Post Mortem #6	"	"	1	"
Men's House #8	1	"	1	"
Storage House #9	None	"	None	2
Hay Barn #14	"	"	"	1
Large Barns #19-#28	"	"	"	10
Anthrax Barn #29	"	"	"	2
Foreman's Cottage	"	"	2	"
Superintendent's House	"	"	2	"

Fire Ladders

There are no ladders on this area. There should be two 40-ft. extension ladders and four 15-ft. ladders located at convenient points. These ladders should be painted a bright red and kept in specified places and used only in case of fire.

Alarm System

This will be considered later with the entire Research Center.



Watchman Service

There will be one watchman on duty at night around this area.

Water Supply System

There is a pump over a well located north of Upper Road which pumps water into a 6" pressure line at the rate of 30 gallons per minute. This 6" line extends north from tower (with a capacity of 50,000 gallons) to north side of Upper Road and thence west along Upper Road to Laboratories Building with a 6" branch running south supplying #2 and #5. Service lines supplying buildings are taken off of this 6" line.



GROUP NO. 4 (See Drawing No. 7.)

Zoological Division

Main Laboratory - Proj. 59

This is a two-story and basement fire resisting building with exterior walls of cinder block with stucco finish. There is a wooden roof with asbestos shingles. All floors are concrete.

This is a new building and at present is unoccupied. It is 40 ft. wide by 86 ft. long.

Total floor area - 10,320 sq. ft.

There are no fire extinguishers in this building

Note: There should be three soda-acid extinguishers placed in this building, one in basement, one in first floor corridor, and one in second floor corridor.

Present Zoological Laboratory

This is a fire resisting constructed building with basement, first floor and attic. All walls are built of cinder blocks, with exterior walls stucco. All partition walls made of cinder block and plastered.

There is a small coal fired boiler in a room in basement. Other rooms are used as work shops and storage rooms.

The first floor is divided by fire resisting partitions into laboratories and office.

The attic is used for storage purposes.

This building is 40 ft. wide by 50 ft. long.

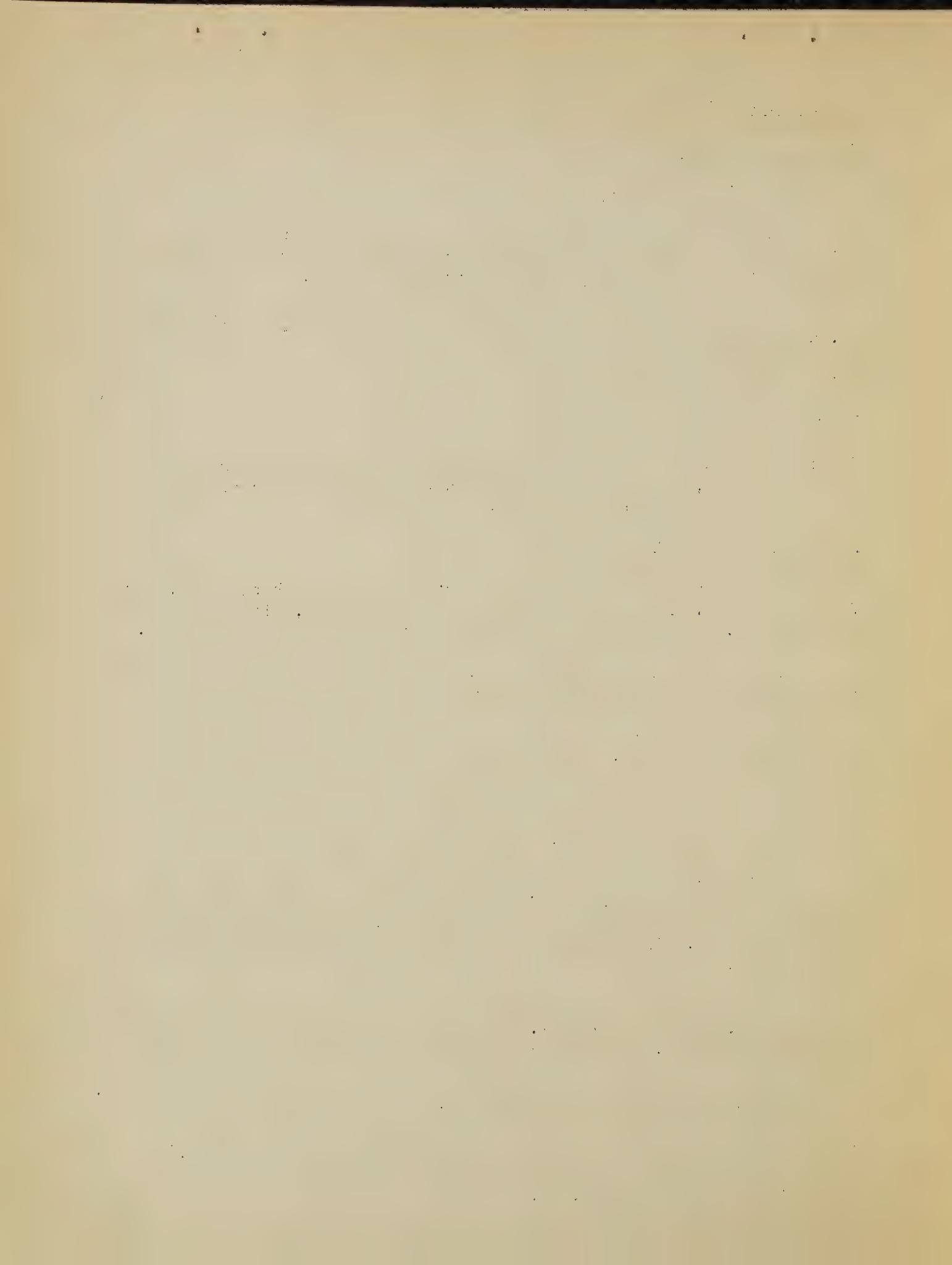
Just inside the door entering east side of basement there is a cabinet containing 50 ft. 2 1/2" fire hose and one nozzle unattached. There is also at this same point one 2 1/2 Gal. soda-acid fire extinguisher and one fire axe. In the boiler room there is one 2 1/2 Gal. soda-acid extinguisher.

In the corridor of the first floor there is a small tetrachloride extinguisher, and one 2 1/2 Gal. soda-acid extinguisher. In a cabinet on wall there is 50 ft. of new 2 1/2" fire hose and one nozzle detached.

There are no fire extinguishers in the attic, but there is a 50 ft. length of 1" water hose connected to a 1" water line.

(NOTE: Would suggest that nozzle be attached to hose in cabinets.)

Total floor area - 6,000 sq. ft.



There are three 2 1/2 gal. soda-acid extinguishers in building.
There is one tetrachloride extinguisher in building.

(NOTE: This building is well protected from internally started fires.)

Barn:

This building is a fire resisting constructed structure with basement, first floor and attic. Exterior walls are cinder block and stucco. Gable ends are also of cinder block and stucco. The roof is of wood construction with asbestos shingles. The basement contains a small coal fired steam boiler and a small coal fired hot water boiler. The rooms are separated by fire resisting partitions of cinder block. Small animals are housed in the rooms.

The first floor is divided by fireproof partitions into rooms housing small animals.

The attic is divided by wooden partitions into a feed room and hay storage. The electric lights are the safety type. This building is equipped with lightning rods. There are four soda-acid extinguishers in building, one located at rear of first floor, one in basement and two in attic. There is also located in feed room in attic a 50 ft. length of rubber hose connected to a 1" water line.

Total floor area - 6,000 sq. ft.

(NOTE: No more extinguishers required.)

Anthelminthic House

This is a one-story building 16 x 30 of cinder block with wooden roof and asbestos shingles. All floors concrete.

Total floor area - 480 sq. ft.

There is no extinguisher in this building.

(NOTE: There should be one soda-acid extinguisher.)

Dog Houses

Just east of Anthelminthic House there are five dog houses in a row, each approximately 8 x 16, with walls of cinder block and wooden roof with asbestos shingles. The houses are heated by steam from a small boiler located in a small fire resisting building about 12 x 12.

There is no extinguisher here.

(NOTE: There should be one soda-acid extinguisher located in boiler house.)

Anaplasmosis Barn & Laboratory

This building is of cinder block construction, the front part being

one and one-half stories and the rear part one story. The roof is wood with asbestos shingles. All partitions are fire resisting being constructed of cinder block and plastered. Floors are concrete. There is hay stored in the attic over front part of building.

The first floor is divided into laboratories, offices and a hospital. There is a small coal fired boiler well isolated.

The barn is divided into concrete stalls.

This building is approximately 40 x 100.

Total floor area - 4,000 sq. ft.

There are no extinguishers in this building.

(NOTE: Would suggest that a soda-acid extinguisher be placed in front part of building in corridor and also one placed in barn.)

Sheep Shelters (West Side Stiles Road)

There are five shelters numbered Z1, Z2, Z3, Z4 and Z5, located west of Zoological Laboratories. These shelters are 8 x 16 and constructed with walls of cinder block, wooden roof with asbestos shingles. They are approximately 55 ft. away from each other. There is a 2" pipe with 2 1/2" outlet located at each end of row. These serve as temporary hydrants. (NOTE: See "Hydrants")

Forge Shop

Just south and west of Shelter #Z-1, there is a small building 8 x 10, half buried inside of bank and with walls of cinder block and cement roof. This building is used as a forge shop and also houses small air compressor. There is a work bench in shop. There are no fire extinguishers in this building. (None needed)

Transformer House

About 40 ft. south of Forge Shop there is a 9 x 10 concrete house with concrete roof, which houses transformers.

Florist Building

Situated just north and west of Barn, there is a small 8 x 10 building with cinder block walls, wooden roof and asbestos shingles. The florist keeps a few boxes of seeds, etc. in this house. There is no fire extinguisher in this building and no need for any.

Incinerator

The incinerator is located about 10 feet west of Florist Building. It is a small cinder block and brick arrangement about 8 x 8.

Avian Coccidiosis Investigation Building

This building is a one-story "cottage" type building approximately 21 x 60. The exterior walls are constructed with cinder blocks and all partitions are fire resisting. The roof is made of wood and covered with asbestos shingles. Experiments on live chickens are carried out in this building. South of this building and practically adjacent to same is an incinerator constructed with cinder block and brick.

There is no extinguisher in this building.

Total floor area - 1,388 sq. ft.

(NOTE: There should be a 2 1/2 gal. soda-acid extinguisher located in this building.)

Shelter

This 8 x 16 cinder block shelter with asbestos shingles on wood roof is located approximately 230 feet west of Anthelmintic House.

Poultry House

This is a fire resisting constructed building with one story and attic. The walls are built of cinder blocks and the wooden roof is covered with asbestos shingles.

The first floor is divided into two laboratories and six poultry rooms.

The attic has a concrete floor and is used for feed storage.

There is one soda-acid extinguisher located in corridor on first floor.

Total floor area - 800 sq. ft. .

Small Live Stock Supply House

This is a 18 x 28 one-story building with cinder block walls, wooden roof, and asbestos shingles.

There are no extinguishers in this building and none necessary.

Total floor area - 504 sq. ft.

Sheep Shelters-Section B

In this section there are eight 5 x 15 sheep shelters, one 10 x 15 sheep shelter and one animal cage approximately 8 x 12. With the exception of the animal cage which is constructed of wire, all shelters are made of cinder blocks and have asbestos shingles.

Hog Colony Houses

In tract designated as "Section C" there are four wooden hog colony houses.

Food and Drug

East of Melvin Road and north of Salmon Road there is a one-story 15 x 32 building constructed with cinder block walls, wooden roof and asbestos shingles. The floor is cement.

There is no fire extinguisher.

Total floor area - 480 sq. ft.

(NOTE: There should be one soda-acid extinguisher placed in this building.)

Hen Houses

North of Food and Drugs Building are 2 wooden hen houses about 8 x 10 and three wooden shelters.

Dog House

North of Hen Houses there is a one-story log house with interior of logs plastered. The roof is covered with asbestos shingles. This building is unoccupied and isolated from others.

There is no extinguisher in building. None needed.

Hog House

North and east of Food and Drug building there is a one-story building called Hog House. The walls of building are of cinder block and the wooden roof is covered with asbestos shingles. All stalls and floors are concrete. There is no extinguisher in building.

(NOTE: There should be one soda-acid extinguisher placed in this building.)

Feed House and Lavatory

This is a small brick and cinder block structure divided by cinder block partitions into a feed room, a lavatory and feed cart storage place.

(NOTE: There should be an anti-freeze fire extinguisher placed in this building.)

Fire Hydrants

There are two temporary connections for a 2 1/2" fire hose. These are designated as Station #1 and Station #2.

Station #1 is located near fence bounding west side of driveway west of Zoological Laboratory and at a point about midway north and south between new and present Zoological Laboratories. At this station there is 50 ft. of 2 1/2" fire hose and 2 nozzles.

Station #2 is located 96 ft. north of Zoological Laboratory (Present).

There is no hose at this station.

Water Supply

There is at present a temporary 2" line running from Poultry Group through a booster pump supplying Zoological group.

Considering the large area covered by Zoology it would seem that running a 6" line from base of water tower would be warranted. The present system would be inadequate in case of fire.

There is a 600 gallon tank mounted on a Lafrance chassis. This tank is connected to a triplex pump working off the transmission. This piece of apparatus was evidently used for spraying at one time but has been converted into a "kind of" fire pump.

Summation

Fire Extinguishers

There should be ten (10) more 2 1/2 gal. soda-acid extinguishers and one (1) 2 1/2 gal. anti-freeze extinguisher located at this group.

Fire Hose

While the present water system does not warrant the use of any more fire hose, this matter should be considered if and when the water supply line is improved.

Ladders

Only one ladder could be located at this group. There should be two 40 ft. extension ladders located as follows:

1 at Zoological Laboratory (New)
1 at Barn

There should also be ten 12 ft. ladders located at various points throughout the area. These ladders should be painted a bright red and kept in specified places and used only in case of fire.

Alarm System

This will be considered later with the entire Research Center.

Fire Organization

There should be organized a fire fighting schedule with men assigned certain stations and with specific duties to be performed. Regular drills should be held.

GROUP NO. 5 (See Drawing No. 16.)

Bureau of Entomology & Plant Quarantine

This group consists of three new P.W.A. project buildings:

- (1) Entomology Laboratory "A" F.P. #20A
- (2) " Greenhouses F.P. #22
- (3) Mushroom Houses

(1) This building is a two-story, basement and attic building of fire resisting construction. The exterior walls are made of cinder block and faced with brick. All partitions are made with cinder block and are fire resisting. All buildings equipped with steel sash.

Total floor area - 18,040 sq. ft.

(2) The exterior walls of Head House are constructed of cinder block with brick facing. The greenhouses have steel sash.

Total area - Head House - 3,280 sq. ft.
" " - Greenhouse - 7,800 sq. ft.

(3) The mushroom Houses are made of cinder block with partitions of fire resisting material.

Total area - 1,320 sq. ft.

Note: These buildings are under construction and are not equipped with fire extinguishers.

There is no water system established as yet at this group. In the 6" main running parallel to Radio Road, and at a point approximately 770 ft. west of end of Implement Building, a plugged tee was left. The distance from this tee to the Entomology group is approximately 6,000 ft.

If a 6" line could be laid running north from the tee approximately 6,000 ft. to Entomology with branches to Radio Section, and from Entomology running west approximately 3,300 ft. picking up proposed 6" line through Zoology and continuing west 1,800 ft. to plugged tee in 6" line running North through Poultry Section, an ideal gridiron system would be created. Hydrants could then be located through Radio Section, Entomology Group and Zoology Group.

GROUP NO. 6 (See Drawing No: 16.)

Department of Commerce
Bureau of Standards
Radio Section.

There are three frame buildings in this group and they are widely separated. These buildings house radio equipment used in transmitting and receiving radio and in research work. All equipment is protected with proper fuses, etc. The main building is equipped with 5 Pyrene and 1 soda-acid fire extinguishers.

There are two wells and two pumps pumping to pressure tanks. They have their own water system.

There is a water hose connected to their pressure system on both the first and second floor of main building.

The present water system at this group is insufficient to take care of any hydrants. If and when a 6" line is extended from Machine Shed to Entomology, a branch should be taken off, running to Radio Group and three hydrants installed.

GROUP NO. 7 (See Drawing No. 17.)

Food & Drugs - Insecticides Control Section

Buildings:

Insecticide Testing Section

This is a new two-story and basement building 35 x 56. The exterior walls are constructed of cinder blocks, stucco outside plaster inside. The roof is steel with tar and gravel.

The first floor is divided by fire resisting partitions into seven rooms, which are used as offices and testing rooms.

The second floor is divided by fire resisting partitions into five offices, two test rooms and a chemical laboratory.

The basement is divided by fire resisting partitions into eight rooms as follows:

- Boiler Room
- Moth Room
- Fumigation Room
- Constant Temperature Room
- Photographic Laboratory
- Work Room
- Two Storage Rooms

There are two sectional heating boilers in basement. These are oil fired with York burners. There is a 3,000 gallon underground oil storage tank just outside the building.

Fire Extinguishers

In one of the basement rooms there is a soda acid extinguisher with tag attached showing date of last charging as 1925.

On the first floor there are two soda acid extinguishers - one located behind a door in SE Room and one located behind a door in SW Room. The extinguisher in the SE Room has charging date of 1925. The hose on this extinguisher is hard and cracked. The extinguisher in the SW room has charging date of 1929.

There are no extinguishers on the second floor.

All of these extinguishers should be discharged and recharged and new date recorded on tags.

Under date of April 16 I wrote to Mr. H. A. Nelson as follows:

"As the result of a survey this morning of Insecticides Control Section in regard to fire prevention and fire protection, I would suggest

that the following items be installed as soon as possible in the Insecticide Testing Section Building:

2 - Foam Type Fire Extinguishers - 2-1/2 gallon
One to be located in Boiler Room in basement
One to be located in Laboratory.

2 - Soda-Acid Type Fire Extinguishers - 2-1/2 gallon
One to be located in corridor in basement.
One to be located in corridor 2nd floor.)

1 - Heavy Blanket for Chemical Laboratory.

1 - Pail fine sand " " "

1 - Hose for Soda-Acid 2-1/2 gallon Extinguisher. (To
replace one at present on extinguisher now
located in southeast corner room - 1st floor.

"The two extinguishers now located in rooms on the first floor should be located one at each end of corridor of first floor. This would make them more accessible in case of fire.

"In the Head House there should also be:

1 - Soda-Acid Type Fire Extinguisher - 2-1/2 gallon

"With the addition of this equipment to that which they now have, I believe they will be well protected against fires started internally."

A special test room on the second floor is used as a file room. There are several packages of old files lying loose on top of filing cabinets. Dr. Abbott informed me that more file cases had been ordered to take care of these loose files.

There are three soda-acid extinguishers now in building.

Total Floor Area - 5,880 sq. ft.

See copy of letter to H. A. Nelson - 4-16-35, for recommendations.

Head House (Annex)

This is a fire resisting building 13 x 70 constructed with exterior walls of cinder block and stucco. Floors and roof structure are concrete. There is a tar and gravel roof. Sashes are steel and doors and frames are wood. This head house is used as a workshop for minor repairs, and very little refuse such as shavings and sawdust was noticed.

There is also a constant temperature room in the west end of head house which is used to raise house flies. This temperature is maintained by an electric heater. There is a testing room located in east end of head house where insecticides used against flies are tested for killing effect.

Connected to the north side of head house are two greenhouses approximately 17 x 35. These greenhouses are set on concrete base and footings. All sashes are steel. There is a gravel floor.

Pump House

Located about 10 feet east and 5 feet north of east greenhouse is a 12 x 18 one-story building of fire resisting construction. Exterior walls are of cinder block and stucco, floor is concrete, wooden roof structure with tar and gravel roof.

This building is directly over well and houses an A.D.Cook, Inc. deep well pump. This building is heated in winter with an electric heater.

This pump discharges into a 2" line running to pressure tank in basement of Insecticide Testing Section building. From this tank water is distributed to all the buildings. This pump has a capacity of 17 gallons per minute against a total head of 250 feet. It is driven by a 3 HP 220 volt motor and operates at 40 R.P.M.

There is no fire extinguisher in building.

Total floor area - 216 sq. ft.

Construction Shed

An old 10 x 10 wooden construction shed is located approximately 48 feet north and 10 feet east of poultry houses. This shed is not used and is very unsightly. It should be razed.

Insectories

North and east of poultry houses are located two wooden buildings used as insectories. One is 14 x 22 and the other 16 x 18. Siding is nailed directly to studs. The roof is wood covered with rolled roofing paper. The floor is also made of wood.

Garage

This is a one story building 20 x 40 with walls of cinder block and stucco, wooden roof covered with tar and gravel and a concrete floor.

There is no fire extinguisher in this building.

Total floor area - 800 sq. ft.

Note:

Hydrants

At present there are no hydrants in this group. There is a 6" water line running parallel to the Radio Road about .45 mile north

of this group of buildings. There is some talk of constructing a large building north of present group. Should this be done, I would recommend extending a 6" branch line to this group and installation of three hydrants.

In case this new construction is not contemplated, there should be a 2" line run from present 6" line along Radio Road to connect with 2" supply line at this group of buildings. This would not only furnish means of running one hose line in case of fire, but would also supply this group with water in case anything happened to electric service.

GROUP NO. 8

BUREAU OF PLANT INDUSTRY Horticultural Section

Horticultural Building

This building is a new "U" shaped fire resisting structure of three floors and attic, constructed with exterior walls of brick and tile, wooden roof structure and slate roofing. All interior partitions are tile plastered both sides. All floors are concrete.

Attic This space is open and bays are assigned for storage of glassware packed in excelsior, fruit jars, rubber tubing, chemicals, file cases, furniture, etc. There are two soda-acid extinguishers located in this space. Two metal staircases leading to third floor are closed off by tile partitions and metal covered doors.

Third Floor There is a "U" shaped corridor with rooms off both sides. Partitions are of tile plastered both sides. Floor is concrete. There are two staircases leading to second floor. There are six laboratories on this floor each equipped with a soda-acid fire extinguisher. There is also a soda-acid extinguisher and a foam extinguisher located at both north and south ends of main corridor. There are 14 offices on this floor.

Second Floor Same as third floor.

First Floor (or Basement) This space is divided by plastered tile partitions into offices, laboratories, storeroom and hot water room. There is one exit on the west side at ground level. There is a soda-acid and a foam extinguisher located at north and south ends of corridor, and one soda-acid extinguisher in each of the six laboratories.

There is a total of twenty-six soda-acid and 6 foam extinguishers in this building.

Total floor area - 36,940 sq. ft.

Note:- Was informed that it is planned to install a 1 1/2" hose rack at top of each stairway leading to attic.

Fruit Products Laboratory

This building is in process of construction. It will have a basement, first and second floor and attic. There is a 32 x 53 addition to basement to be used as a Wine Vault.

The exterior walls of basement are reenforced concrete; the other exterior walls are tile with brick veneer. The basement is divided by hollow tile and plastered partitions into several rooms. The first and second floors are divided by hollow tile and gypsum block partitions into several rooms.

The wooden roof structure is covered with slate shingles. The attic space is to be used for storage.

All steel staircase enclosed, on three sides with tile partition.

Headhouse and Greenhouses

The headhouse for the eight greenhouses is west of Horticultural Building. It is 23'x 528'. There is a difference of about 30 feet in elevation of #1 headhouse and #8 headhouse. Each headhouse is separated from adjoining headhouse by a cinder block partition with one door opening, and each section has separate roof. In each headhouse there is a storage room and a laboratory partitioned off with plasterboard on wood stud.

The exterior walls are of cinder block with brick veneer. The floor is concrete, and the wood roof structure is covered with slate.

In #2 Headhouse there is a transformer room with concrete floor, walls and ceiling.

There are eight 35 x 125 greenhouses. Each headhouse section has an attic space which is used for storage of pots, etc.

The entire place is kept extremely clean and all rubbish is gathered up daily.

There are two soda-acid extinguishers in headhouse.

Total floor area - 12,144 sq. ft.

Boiler House

At the west end of Headhouse is the Boiler House, constructed of cinder block and brick veneer, concrete floor, steel truss roof and slate roofing. All partitions are made with plaster board on wood stud. There are two 150 H. P. Economic Type Fire Tube Boilers, oil fired, and necessary pumps, etc. There is also a gasoline engine driven auxiliary generator of sufficient output to take care of boiler room demand in case of emergency.

There is one 2 1/2 gallon soda-acid extinguisher.

There is one 2 1/2 gallon Foam extinguisher.

There is one 40-gallon Foam Engine with 50 ft. of 1" hose.

Total floor area - 900 sq. ft.

Propagating House

This building is west of Boiler House. It has cinder block walls up 3'0" and glass roof.

Headhouse and 2 Greenhouses

The headhouse is made of cinder block with wood roof and paper

Headhouse and 2 Greenhouses (Contd.)

shingles. It is 15 x 37. The greenhouses have wooden sash. This group is immediately west of Propagating House.

Screen House

This building is framed and braced with 2 x 4's and covered entirely with screen cloth.

Tool Houses

There are two 18 x 30 frame buildings with concrete floors and paper shingles. They are used for storing tools.

Slat Houses

There are two houses 20 x 120 constructed with wood studs, rafters, etc. and covered with strips or slats, spaced about 2" apart.

Note:- The above buildings are protected by equipment kept in Boiler House.

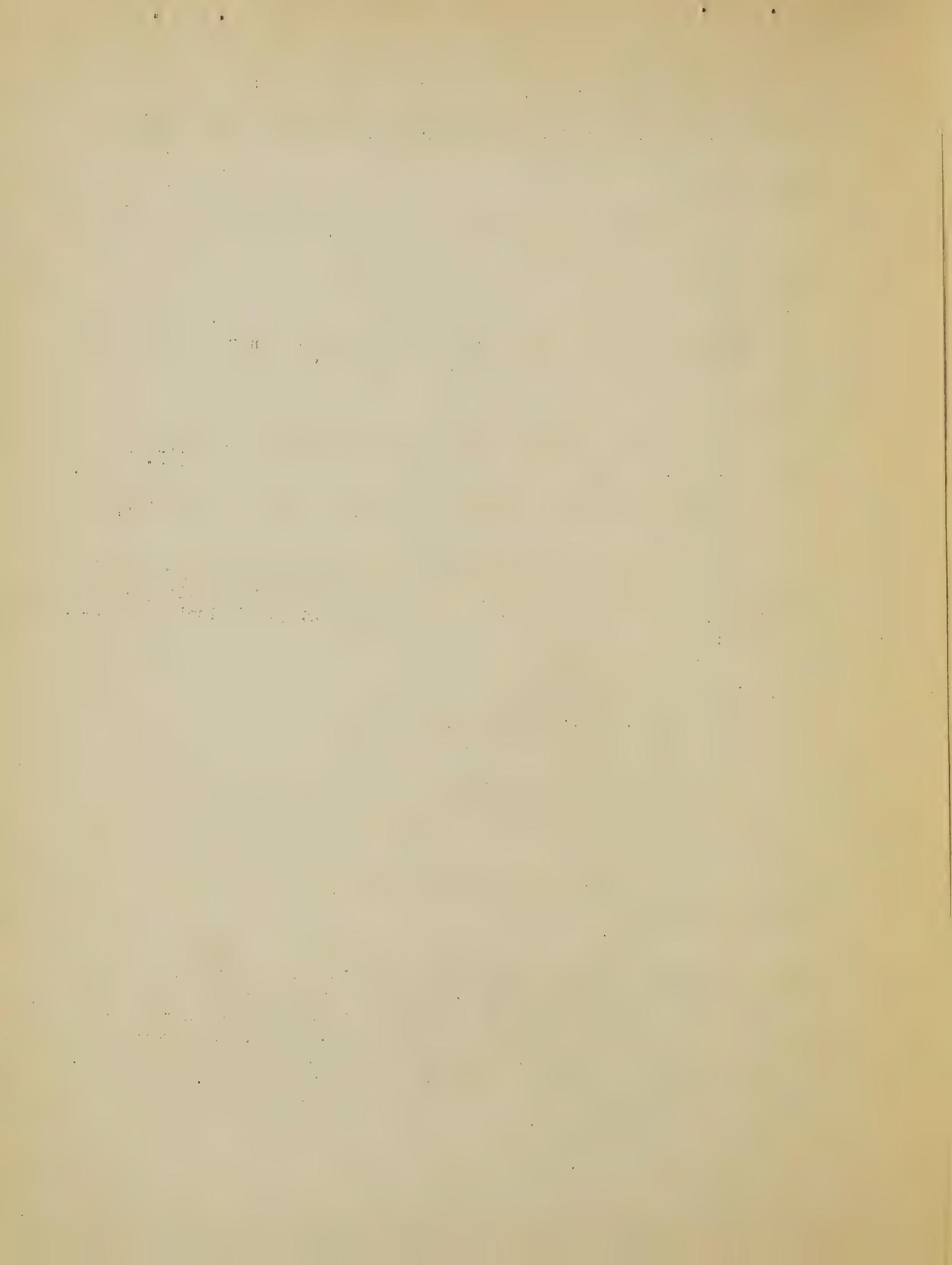
Located about three-quarters of a mile west of the Horticultural Building is a group of frame buildings known as the "Horticultural Field Station". The buildings in this group are given the following tentative numbers:

- (1) Garage
- (2) Tool Shed
- (3) Spray Material Shed
- (4) Implement Shed
- (5) Garage
- (6) Fertilizer House
- (7) Sweet Potato House
- (8) Carriage House
- (9) Garage
- (10) Barn
- (11) Superintendent Residence.

Garage Building No. 1

This is a frame building 25 x 100 with dirt floor and paper shingles and metal covered doors. There are no cross partitions in this building. Against above building on the south side there is a 25 x 100 frame lean-to, also used as a garage. In the main garage, there is a large hose reel, with 600 ft. of double jacket 2 1/2" hose, with nozzle in place. There is also one fire axe on reel. There is a Model T Ford equipped with two 25-gallon soda-acid Chemical Tanks and 100 feet of 3/4" hose.

Total floor space - 5,000 sq. ft.



Garage Building No. 1 (Contd.)

Note:- The chemical tanks mounted on Model T Ford can be used to protect this building, but in extreme cold weather, there is danger of these tanks freezing. Would suggest that 2 anti-freeze extinguishers be placed in this garage.

Tool Shed - Building No. 2

Adjoining No. 1 Garage, there is a 20 x 25 frame one-story building used to house hand tools. The roof is covered with old wooden shingles. This building should be razed.

Spray Material Shed - Building No. 3

About ten feet west of Tool Shed there is a 12 x 12 frame building with paper shingles. Would recommend that this building be razed.

Implement Shed - Building No. 4

East and South of No. 1 Garage there is a 25 x 100 frame shed with paper shingles, used for housing farm implements. There is no floor in building. Part of building is used as a carpenter shop and shavings and all refuse cleaned up daily. The large doors on shed are wood with metal covering.

There is no fire extinguisher in this building. There should be one anti-freeze extinguisher placed in carpenter shop.

Total floor area - 2,500 sq. ft.

Garage - Building No. 5

This building is 25 x 100, of frame construction and adjoins the east end of building No. 4 at right angles. Building is covered with paper shingles and doors are covered with metal.

There is no fire extinguisher located in building. There should be one anti-freeze extinguisher located at north end of building.

Total floor area - 2,500 sq. ft.

Fertilizer House - Building No. 6

This building is constructed with cinder block walls, concrete floor, wood roof and paper shingles. It is 30 x 40 and is used for the storage of fertilizers, etc.

There is no fire extinguisher in building.

Total floor area - 1, 200 sq. ft.

Sweet Potato House - Building No. 7

This building is a 32 x 40 frame structure with paper shingles. There is a small hot water, coal fired heating boiler located in building. There is no fire extinguisher.

There should be one soda-acid extinguisher.

Total floor area - 1,280 sq. ft.

Carriage House - Building No. 8

This building is an old frame structure with "curly" wood shingles. It is used to store lumber, pipe, tanks, old tractors, etc.

It should be razed.

Garage - Building No. 9

This building adjoins Carriage House. It is a frame structure, 25 x 80 with paper shingles. Doors are covered with metal.

There is no extinguisher in building.

There should be one anti-freeze extinguisher.

Barn - Building No. 10

This building is a large frame structure 42 x 60 and approximately 45 feet high. It is covered with a metal roof. The interior is entirely open with no partitions. It is used for storage of farm implements, baled straw and miscellaneous equipment. There are five horses stalled in the basement.

All electric lines are in BX cable. Barn is equipped with lightning rods.

There is a 2 1/2" pipe hydrant located 40 ft. west of barn.

There is no fire extinguisher.

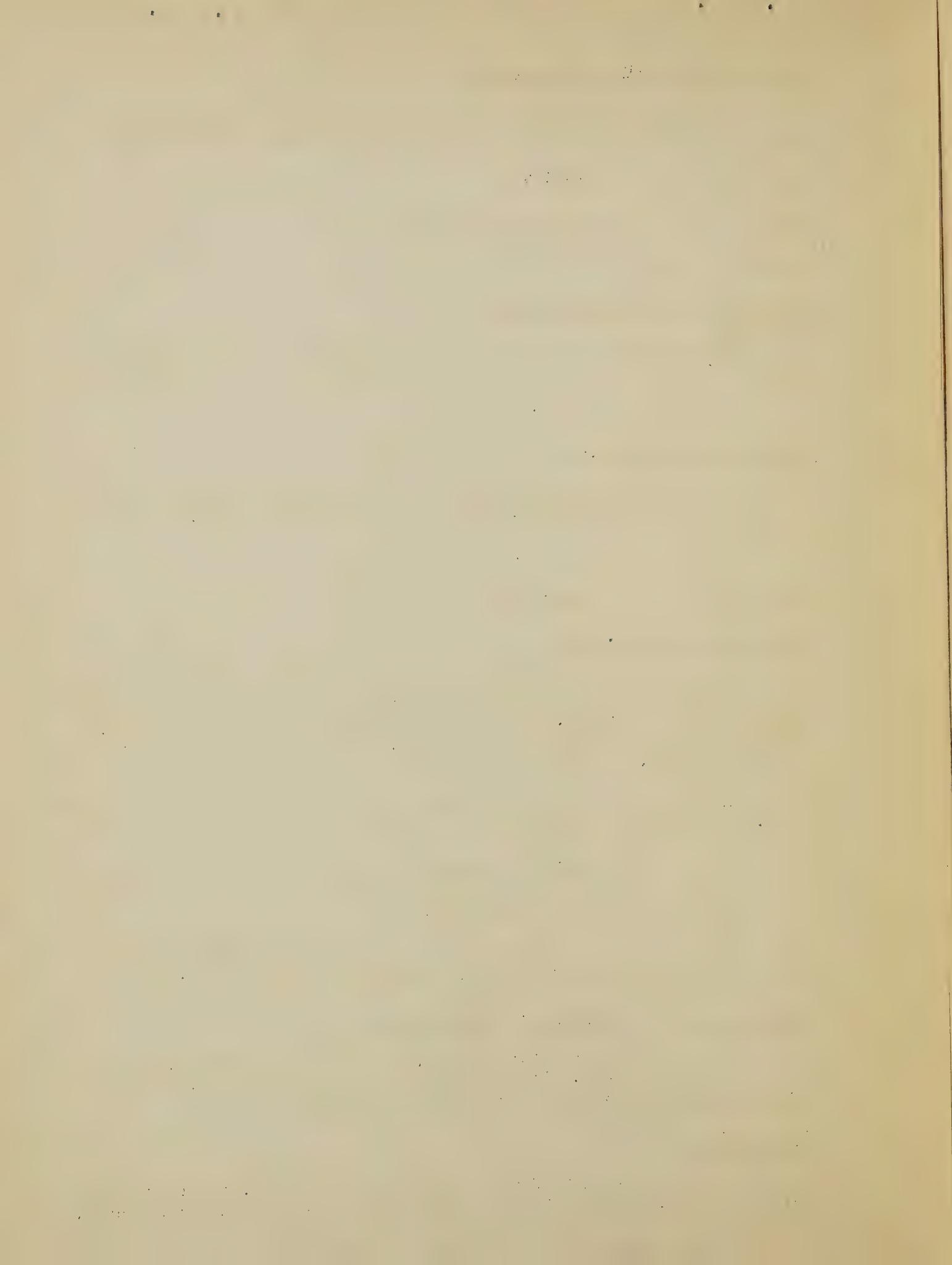
This building is particularly hazardous and its close location to other buildings justifies the recommendation that it be razed.

Superintendent's Residence - Building No. 11

This building is a three-story, 14-room frame dwelling, with paper shingles on roof. It is equipped with lightning rods. There are two soda-acid extinguishers located in house.

Outbuildings

There is a 16 x 20 frame garage with metal roof, two 12 x 16 chicken houses, and one 12 x 20 wood shed. The latter should be razed.



Storage Buildings

South of the field station group there are three buildings. Two of these buildings are 30 x 50, one story, and one is 30 x 50 two stories. They are constructed with cement block walls, wooden floors and roof structure and paper shingles. They are used as storage houses for valuable experimental stock. One is used for nursery stock, one for bulb storage and one for potato storage.

There is no extinguisher.

There should be one anti-freeze extinguisher located at this group.

Dwellings

Scattered throughout the farm are the following dwellings:

Foreman's Cottage

An 8-room frame dwelling with paper shingles. There is a small garage here.

This dwelling has a 2" water supply from the Washington Suburban Sanitary District lines.

There are no extinguishers here. There should be one soda-acid extinguisher located at dwelling.

#1 Dwelling on Powder Mill Road

A 4-room frame dwelling with paper shingles. There is no protection here. Would recommend razing building.

#2 Dwelling on Powder Mill Road

A 4-room frame dwelling with paper shingles. There is no protection here. Would recommend razing building.

Mr. May's Residence

This is a 5-room frame dwelling with paper shingles. It is located just west of new Fruit Products Laboratory. This is a new house and has no protection against fire.

Would recommend one soda-acid extinguisher be placed at this building.

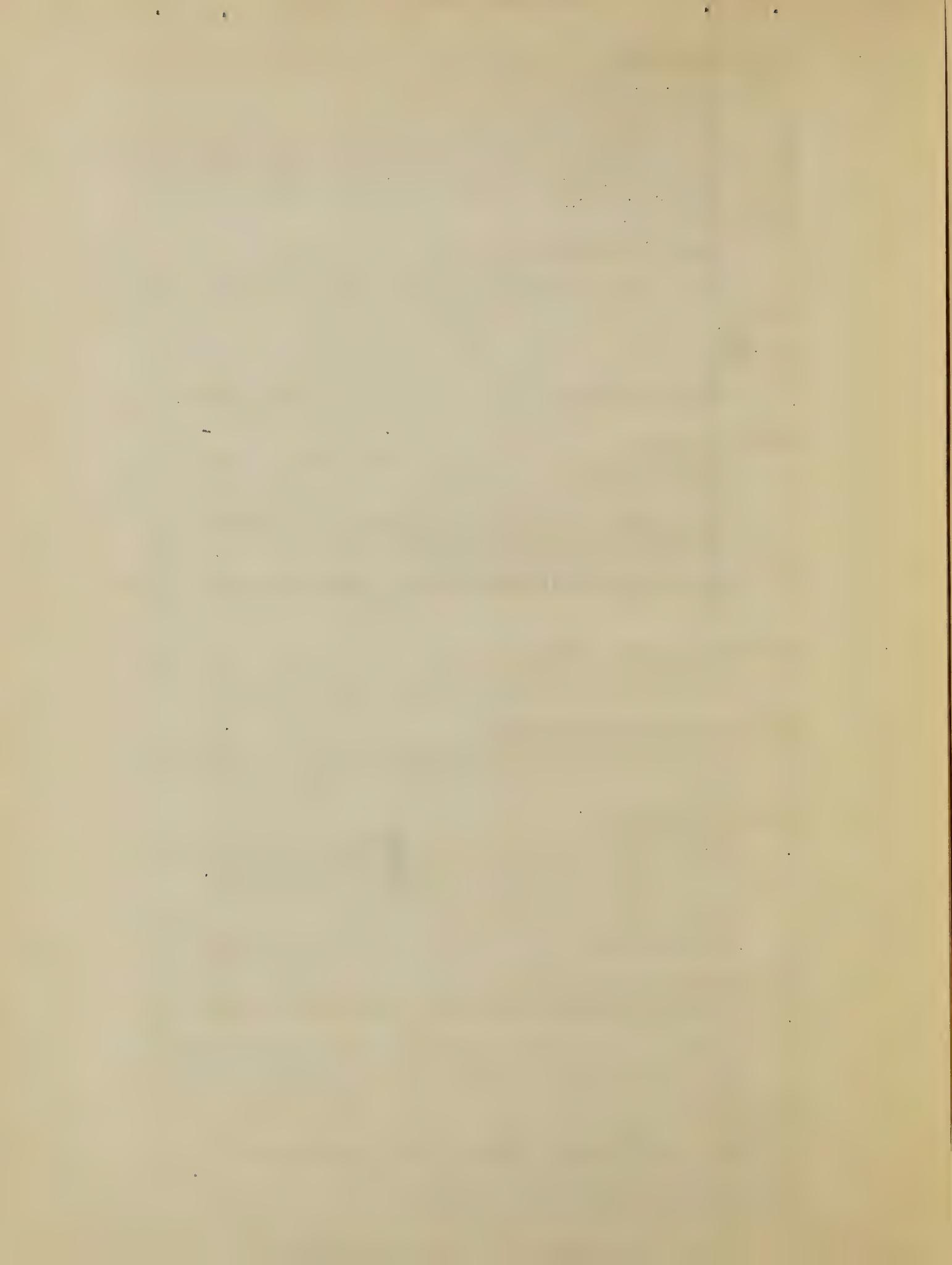
Mr. Albert Yowell's Residence

This is a 6-room frame cottage, with paper shingles.

There is no fire protection here. Would suggest a soda-acid extinguisher be placed here.

Field House

This is a large log lodge, 45 x 60, located west of field



station. There is no extinguisher here. Would recommend that two anti-freeze extinguishers be installed at this building.

SUMMATION

Fire Hydrants

There is one pipe hydrant with connection for 2-1/2" fire hose located about 40 feet west of Barn #10.

There is a W.S. & S. D. 2-way hydrant located on the Pike about 1,000 feet southeast of Horticultural Building.

Fire Hose

There is 600 feet of 2-1/2" double jacket fire hose on reel located in #1 Garage.

Fire Extinguishers

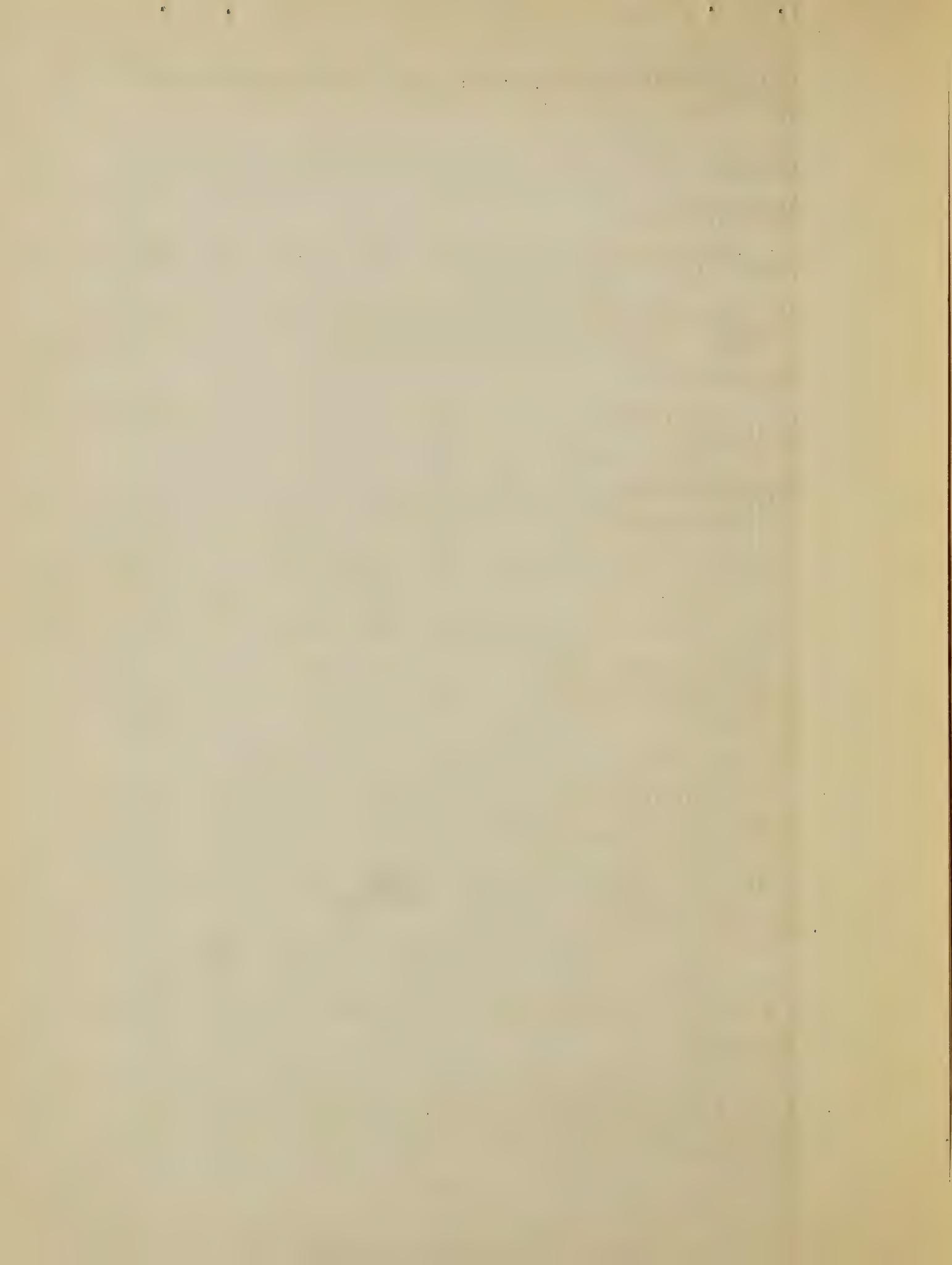
Following is a tabulated summary of extinguishers:

Building	Extinguishers at Present			Extinguishers Required		
	Foam	Soda- Acid	Anti- Freeze	Foam	Soda- Acid	Anti- Freeze
Horticultural Building	6	26	None			
Headhouse and Greenhouses	None	2			2	
*Boiler House	1	1				
Garage No. 1					2	
Implement Shed #4					1	
Garage #5					1	
Sweet Potato House #7					1	
Garage #9					1	
Superintendent's Residence #11		2				
Storage Buildings					1	
Foreman's Cottage					1	
Mr. May's Residence					1	
Mr. Yowell's Residence					1	
Field House					2	
				6	8	

* There is one 40-gallon foam fire engine located in boiler house.

Fire Ladders

There are no ladders on this area. There should be three 40-ft. extension ladders and five 15-ft. ladders located at convenient points. These ladders should be painted a bright red and kept in specified places and used only in case of fire.



Alarm System

This will be considered later with entire Research Center.

Watchman Service

Water Supply System

There is a pump house located on the creek that houses a 4-cylinder gasoline engine driven 4 x 6 double acting water pump, pumping 100 gallons per minute. This pump discharges into a 2,500 gallon steel water tank situated west and south of Superintendent's residence. From this tank a line runs to field station.

The greenhouses and new buildings located near the Pike are supplied by the W. S. & S. D. Water line.

Recommendations:

Hydrant Line - It is suggested that a 6" water line be run from the W. S. & S. D. Supply on the Pike west to the Field Station, and branches taken off and hydrants installed at Horticultural Building and Field Station Buildings. The buildings at Field Station are all frame and are not amply protected with water lines. This would require approximately one mile of piping.

Storage Space - It is suggested that the storing of material in attic space of new Horticultural Buildings be governed so that there would at all times be at least three feet of clear space at the rear along the roof and that material be kept at least 24" from roof.

It should be stated here that the Superintendent of this group is very much interested in fire protection, and rigidly enforces rules against smoking in restricted places, and keeps the buildings on area free from rubbish.



GROUP NO. 9

Sewage Treatment Plant

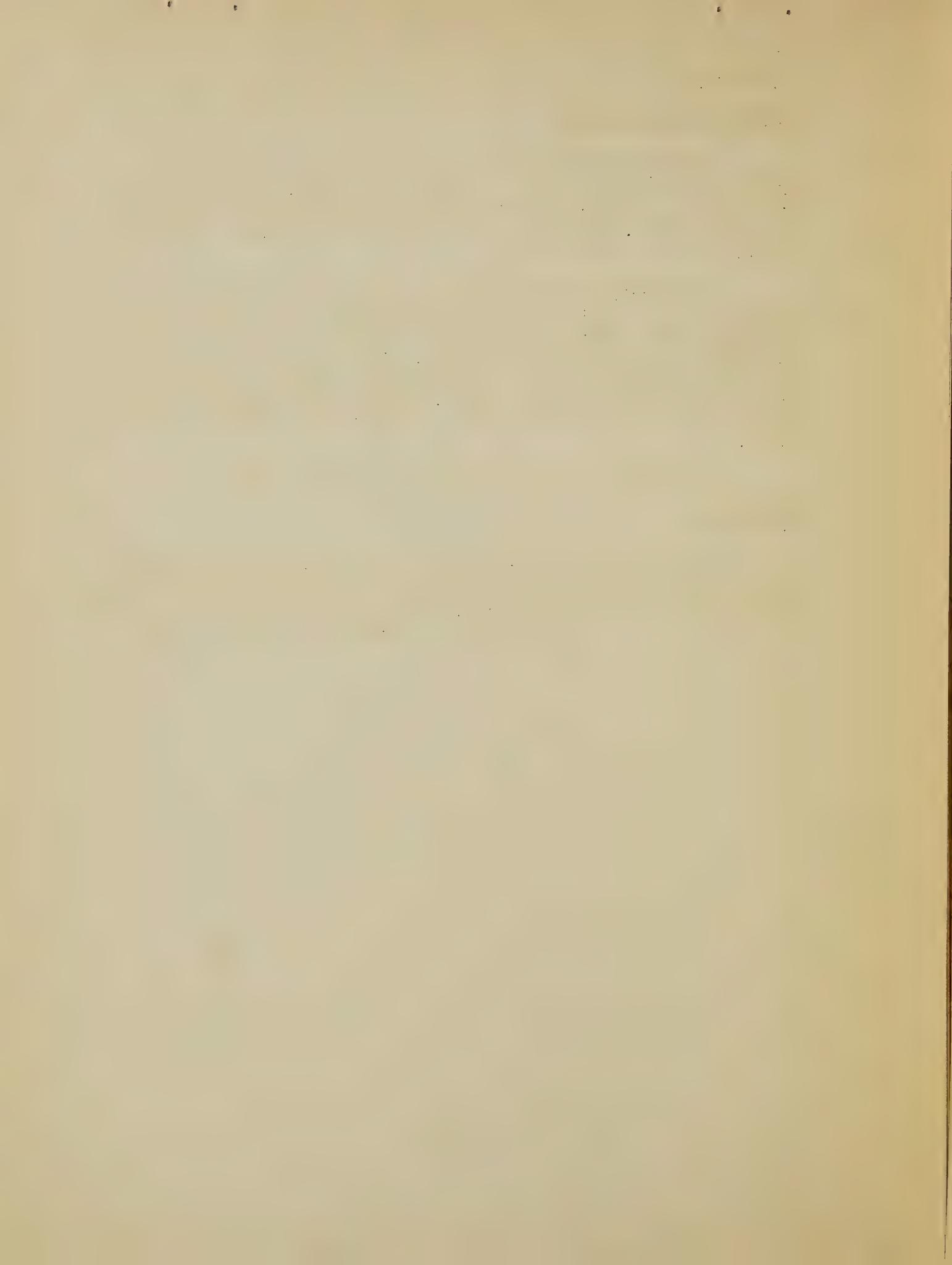
This plant is located south of Sheep Barn and Assistant Superintendent's residence. It consists of Sludge Beds, Chlorination Chamber, Service Building, Mixing Tanks, Filters, Pump House and Final Tanks. There are only two actual buildings - the Service Building and the Pump House.

The Service Building is a one-story brick and hollow tile building 32'6" x 38' with basement, and wooden roof covered with slate roofing. Part of basement is to be used as a boiler room and has cement floor, walls and ceiling. The first floor is divided by hollow tile partitions into Laboratory, Lime Room, Chlorination Room and Chemical and Screen Room. On the north wall of first floor hallway there will be a fire hose rack with hose connected to water line.

This building was uncompleted as of May 3, 1935.

Pump House

This building is a one-story brick and hollow tile structure 16 x 18 with cement floor, metal lath and plaster ceiling and wooden roof covered with slate roofing. There is one room partitioned off with hollow tile. This building not occupied as of May 3, 1935.



GROUP NO. 10 (See Drawing No. 18.)

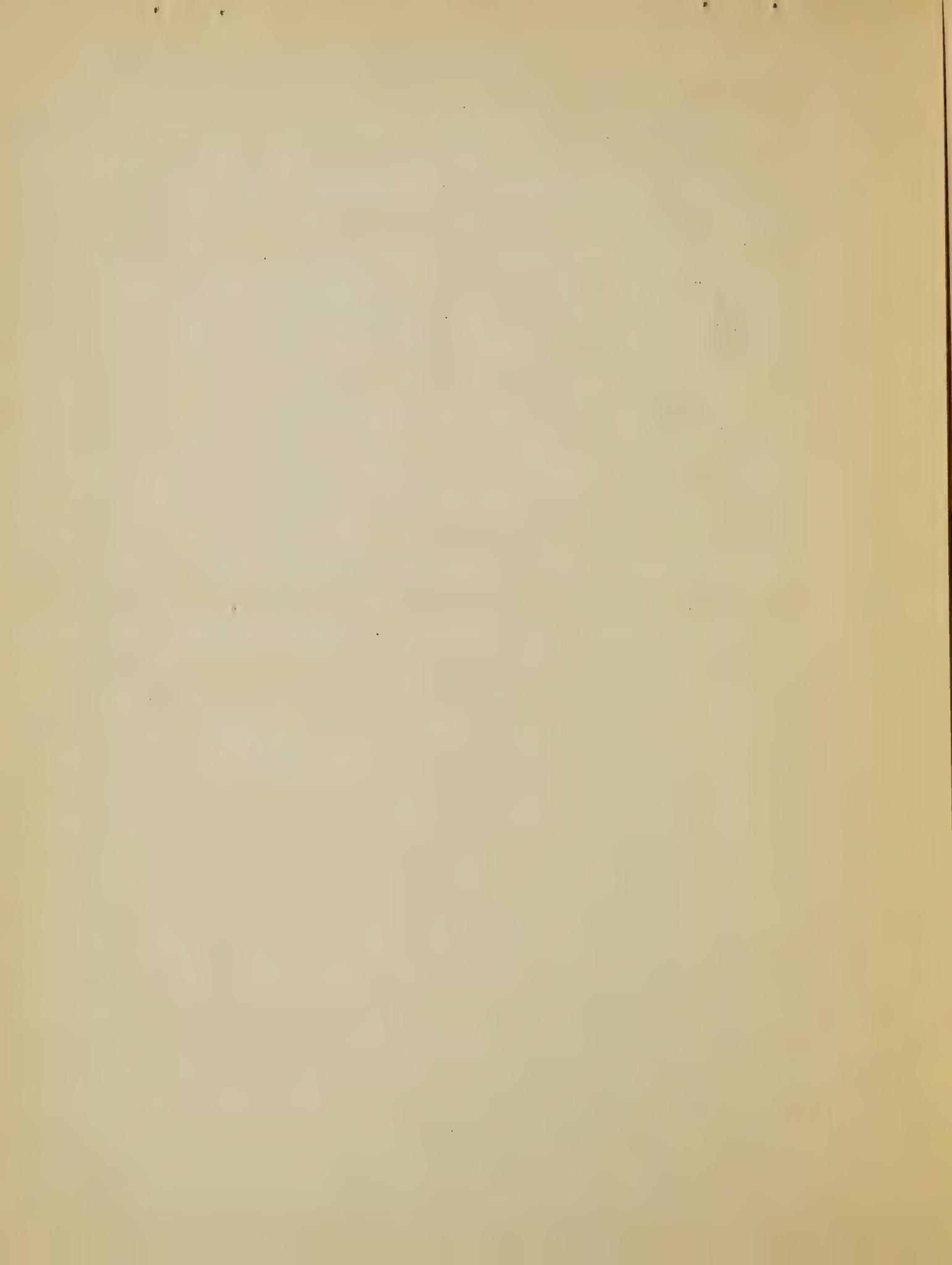
BUREAU OF PLANT INDUSTRY
Forage Crops and Diseases
Knoblauch Tract

There is a small group of farm buildings here which are all of frame construction. For convenience I have listed them as follows:

- (1) Small 2-story Frame Residence.
- (2) " 1-story Frame Shed.
- (3) " 1-story " "
- (4) " 1-story " "
- (5) Frame Machine Shed - Open Front
- (6) Hay Barn
- (7) Crib
- (8) Frame Shed
- (9) Privy
- (10) Henhouse
- (11) Grain Shed
- (12) Horse Barn
- (13) Small Frame Shed - Open Front.

These buildings are isolated from any other group and are unprotected against fire. The residence is occupied by one of the farm hands. There is a small well with hand pump on property.

There are no fire extinguishers located at this group of buildings. There should be two soda-acid extinguishers located in residence.



GROUP NO. 11 (See Drawing No. 4.)

Bureau of Plant Industry
U. S. Plant Introduction Garden
Bell Station, Maryland

This group is located about one and one-half miles south of Glendale, Maryland, and about three miles from the Beltsville Research Center. Following is a description of buildings:

Office Group

This group consists of a Main Building and North and South Wings. The main building is 22 x 40 with cinder block walls, plastered inside. The roof structure is a heavy truss construction covered with asphalt shingles. The floor is wood covered with linoleum. The north wing is 16 x 25 with walls of cinder block, wood floor and roof and asphalt shingles. It is used as a Photographic Laboratory.

The South Wing is 16 x 25 with walls of cinder block, wood floor and roof and asphalt shingles. It is used for seed and bulb storage.

There are two Pyrene extinguishers in building.
Total floor area - 1680 sq. ft.

#1 Head House

This headhouse is 22 x 80 with tile walls, concrete floor, wood roof and asbestos shingles. The ceiling is made of Beaver Board. There is an office made with wooden partitions. There is one soda-acid extinguisher in building.

U. S. Plant Introduction Garden

There are 150 ft. of 1-1/2" fire hose on wall reels, and a 1-1/2" water connection.

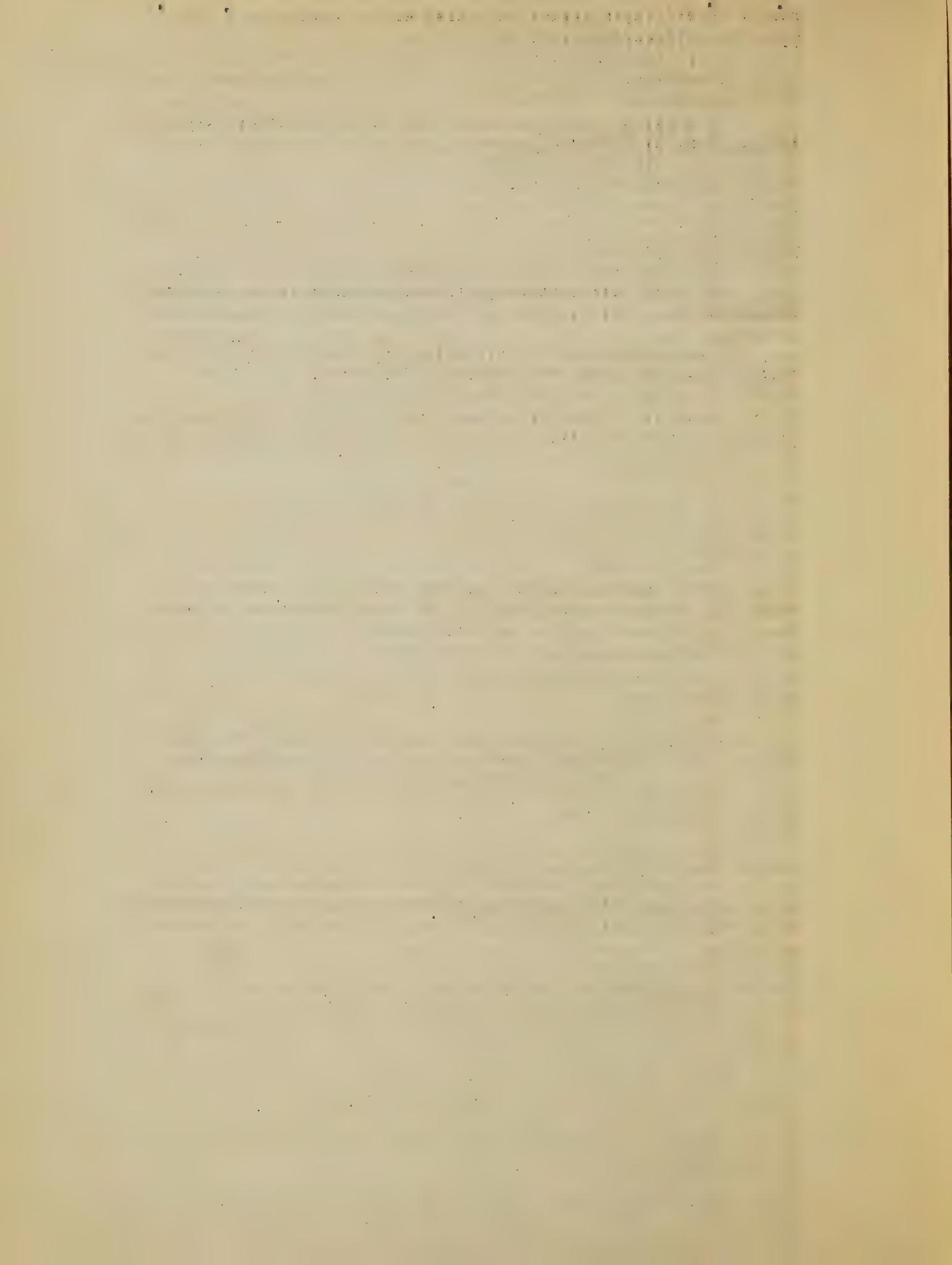
There is a 22 x 37 room on west end of headhouse used as a locker room, with wooden lockers.

Total floor area - 2,574 sq. ft.

Boiler Room

The main building is 22 x 40 with cinder block walls, plastered inside. Adjoining the west side of Locker room is a 20 x 40 Boiler Room, with tile walls, concrete floor, wooden roof and asbestos shingles. The north wing is 16 x 25 with walls of cinder block, wood floor and roof and asphalt shingles. It is used as a Photo Laboratory. There are three hot water oil fired heating boilers, one burning No. 2 oil, the other burning No. 5 oil.

The South Wing is 16 x 25 with walls of cinder block, wood floor. There is a concrete storage tank in Boiler Room taking care of 4,000 gallons of oil.



At head of stairs leading down into boiler pit, there is one Pyrene fire extinguisher. I would suggest that one 2-1/2-gallon foam extinguisher be installed here.

Total floor area - 800 sq. ft.

Quarantine Greenhouse

The Headhouse is 18 x 36 made with cinder block walls and plastered inside. Partitions are metal laths and plaster. There are two 28 x 110 greenhouses off of this headhouse. There is one soda-acid extinguisher.

Total area of headhouse - 648 sq. ft.

Superintendent's Residence

East and south of the office group is a six-room frame dwelling with asphalt shingles. This building is heated by a hot water boiler which is coal fired.

There are two Pyrene extinguishers in house.

Greenhouses

Adjoining south side of No. 1 Headhouse are the following:

No. 1 Greenhouse	25 x 220
No. 2 "	25 x 220
No. 3 Propagation House	12 x 200

Just west of Propagation house are the following:

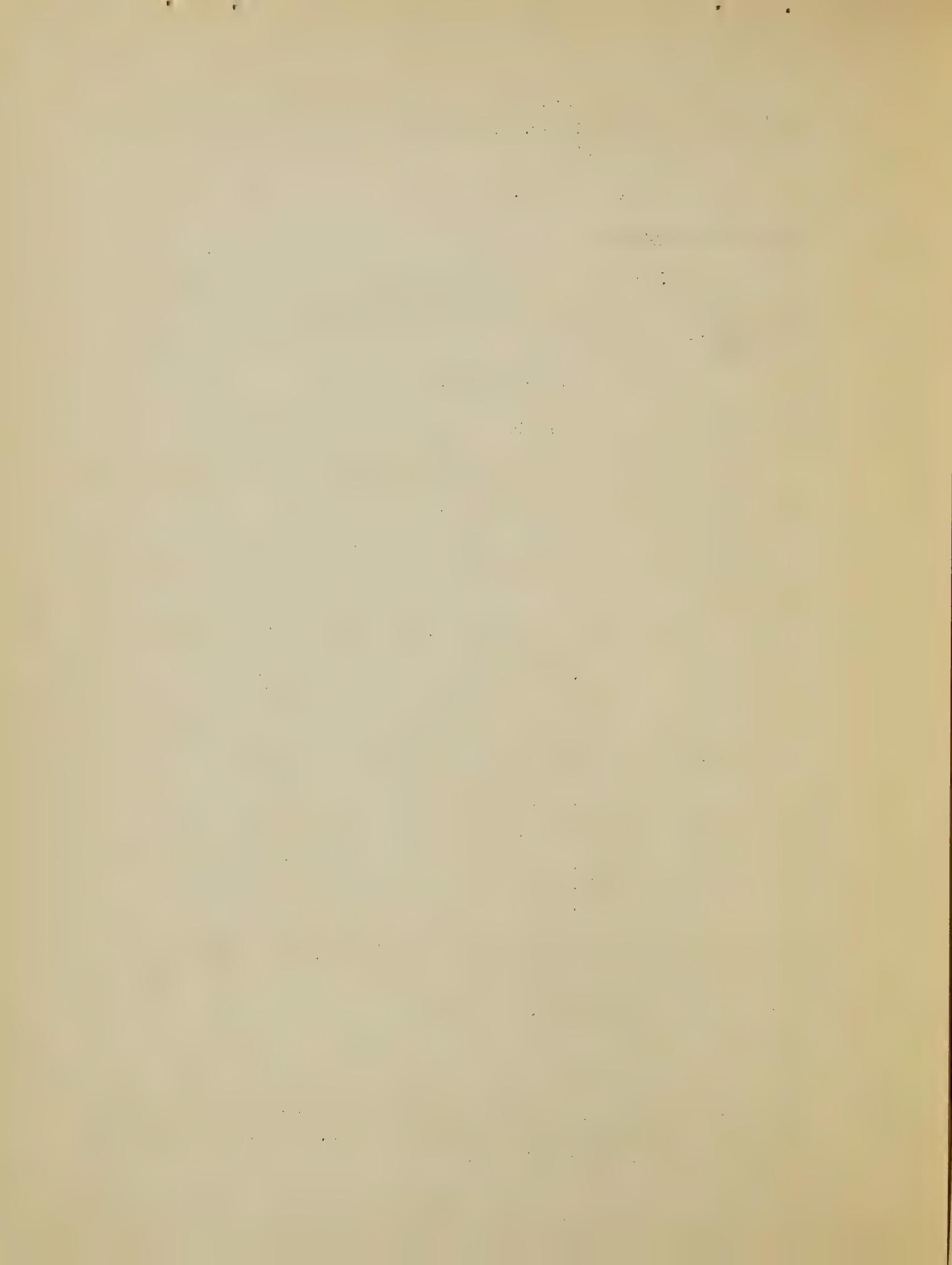
No. 4 Pit Greenhouse	12 x 200
No. 5 ", "	12 x 200
No. 6 " "	12 x 190
No. 7 " "	12 x 180
No. 8 " "	12 x 180
No. 9 " "	12 x 50

These houses are all heated from main Boiler house.

Each greenhouse has 3/4" water connections and hose which could be used for small fires.

Sterilizer House

This is a 30 x 42 building with walls of cinder block, wood roof and paper shingles. There is a concrete floor throughout building. There are concrete bins for storage of pots, and over these bins are stored tubs and wooden frames.



Also stored in building are several bags of cement, beaver board, and reenforcing bars.

There is equipment for washing pots and a sterilizer for purifying soils. There is a 10 H. P. coal fired steam boiler operating at 125 pounds pressure. There is also a small boiler for heating water.

There are no fire extinguishers in building.

There is a 3/4" hose connection on water line.

Total floor area - 1,260 sq. ft.

Soil Storage

Adjoining south side of Sterilizer House is a 14 x 30 cinder block structure with wood roof and paper shingles. Floor space is divided by cinder block partitions into soil bins about three feet high. Sterilized soil is placed in these bins and allowed to weather.

Refrigerator Room

This is an 18 x 20 cinder block construction building, with wood roof and asbestos shingles, concrete floor, Cel-o-tex ceiling, steel sash and wood doors.

There are two refrigerating units supplying refrigeration to two vaults.

There is a 3/4" hose connection available in building. There is no extinguisher.

Recommend a Pyrene extinguisher for this building.

Total floor area - 360 sq. ft.

Lean-to Greenhouse

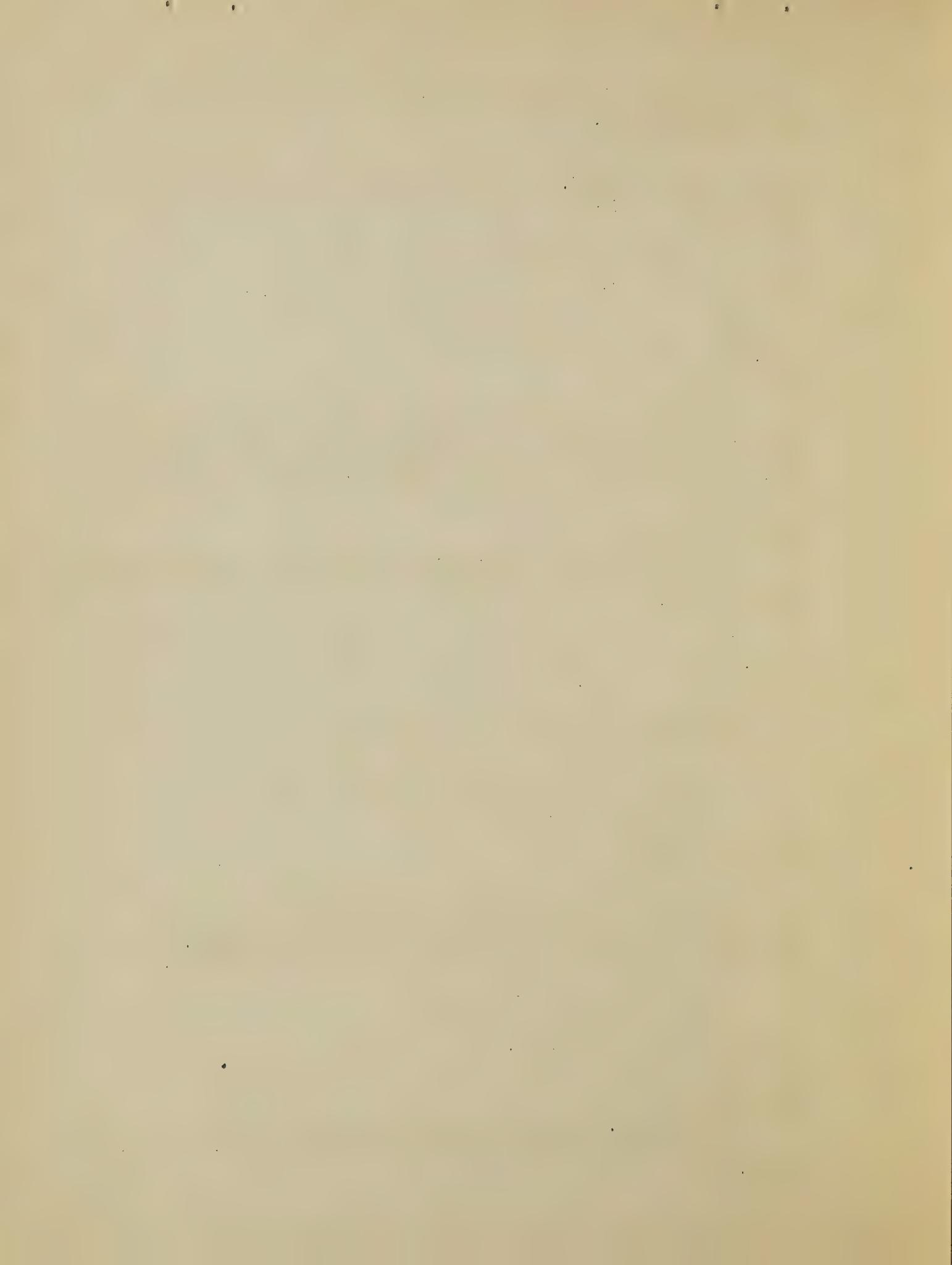
Adjacent to Refrigerator and adjoining Nos. 6, 7 and 8 Greenhouses, is a greenhouse used for propagating plant slips. This building is 10 x 40, with concrete floor and glass roof. South side of building has wall of weather board and Cel-o-tex.

There is no fire extinguisher.

Total floor area - 400 sq. ft.

North Lath House

This building should be called a screen house. This is a structure with wood stud and frame covered with screen wire. It is 28 x 85.



South Lath House

This is a wood frame building with sides and roof covered with laths. It is 30 x 105.

Storage House

This is a 50 x 90 frame structure. It is divided into two sections:

1. Storage section
2. Packing section.

Storage Section - The walls of this section are wood siding backed up with 1-1/2" Cel-o-tex insulation. The floor is a sand floor. Plants are stored here and delivered at different times during the year.

Packing Section - This is a frame structure with wood floor and roof, covered with paper shingles. The first floor is used for packing plants and as a carpenter shop. Shop is cleaned daily. In the basement are two 2,000-gallon pressure tanks for fire and service lines and two 1,000-gallon pressure tanks for domestic water lines. There is a small coal-fired low pressure Spencer steam boiler in basement.

There are three soda-acid extinguishers and one Pyrene extinguisher in building.

Clerk's House

This is a five-room frame dwelling with asphalt shingles. This building is heated with a coal fired hot water boiler.

There are two Pyrene extinguishers in dwelling.

Propagator's House

This is a five-room frame dwelling with asphalt shingles. This building is heated with a coal fired hot water boiler.

There are two Pyrene extinguishers in dwelling.

Pump House

This is a small 10 x 10 house with wooden roof and asphalt shingles. It houses a reciprocating pump nominally driven by electric motor, but with a single cylinder gasoline motor stand-by. This pump has capacity of 51 gallons per minute.

There is one Pyrene extinguisher.

Domestic Pump House

A small 8 x 10 concrete sunken building houses a small motor driven pump - 10 gallons per minute - supplying water to domestic water lines.

There is no extinguisher.

Sheds

There are two 12 x 40 frame sheds covered with rolled roofing paper. Fertilizer is stored in one, and lumber in the other.

There are no extinguishers in these sheds.

Oil Storage Shed

This building has slatted sides and wooden floor and roof. Roof is covered with rolled roofing paper. Floor is covered with sheet metal.

Kerosene, Linseed oil, turpentine and lubricating oils are kept in metal containers.

There are no extinguishers here.

Recommend an anti-freeze extinguisher be installed in this building. There should also be a box of fine sand placed handy to shed.

Stable and Barn

The barn is a 40 x 40 two-story frame building with a 20 x 40 frame Lean-to on the south side which is used as a stable. The stable is divided by wooden partitions into a garage for one car and one tractor, a feed and harness room, and a stable with three stalls for horses. The first floor of barn is used to house farm implements. The second floor, or loft, is used to store baled hay and packing moss. In addition there is stored a large quantity of used furniture and office equipment.

Important This furniture constitutes a serious fire hazard. It is used equipment that was sent out from Washington. It should be surveyed at once and removed.

There is no extinguisher in building. Would recommend one anti-freeze extinguisher.

Total floor area - 2,400 sq. ft.



Implement Shed

This is a one-story "L" shaped frame building covered with rolled roofing paper. The north part has an open side and houses two automobiles, two trucks and a horse drawn sprayer wagon. The other part houses farm implements.

There is no extinguisher here. Would recommend one anti-freeze extinguisher at this location.

SUMMATION

Fire Hydrants

There are eleven (11) pipe, fire hydrants with connection for 1-1/2" hose located at points convenient to all buildings (See Drawing No. 4.)

Fire Hose

In No. 1 Headhouse there is 150 feet of 1-1/2" fire hose, equipped with 1/4" Nozzles.

There should be 300 feet more of 1-1/2" linen hose located as follows:

100 ft. at Storage Building
100 ft. at Implement Shed
100 ft. at Pump House

Fire Extinguishers:

Following is a tabulated summary of extinguishers:

Buildings	Extinguishers at Present			Extinguishers Required			
	Soda-Acid	Pyrene	Anti-Freeze	Pyrene	Soda-Acid	Foam	Anti-Freeze
Office Group		2					
No. 1 Headhouse	1						
Boiler House		1					
Quarantine Headhouse	1						
Superintendent's Residence		2					
Refrigerator Room							
Storage House	3	1		1			
Clerk's House		2					
Propagator's House		2					
Pump House		1					
Implement Shed							1
Oil Storage Shed							1
Stable							1

Fire Ladders

There are no fire ladders on this area. There should be one 30-ft. extension ladder and 3 15-ft. ladders located at convenient points. These ladders should be painted a bright red and kept in specified places and used only in case of fire.

Alarm System

An electric horn sounds signal for farm help. In case of large fire telephone communication is established with Glendale Fire Department. This is a volunteer department and seven of the employees are members of the organization.

Water Supply System

There is a reservoir lake 150 x 250 fed by springs and maintaining a minimum depth of five feet. This reservoir contains 1,406,250 gallons. A pump taking its suction from this lake pumps into two 2,000-gallon pressure tanks located in basement of storage building. An air compressor maintains air pressure in tanks. There are two 4" valves controlling discharge from pump. It can also discharge directly into fire line.

There is also a small pump operating on an independent source supplying domestic water through two 1,000-gallon pressure tanks.

Note: The fire apparatus at Glendale which is available for use at this plant consists of one 300-gallon Booster Tank vehicle, and one 230-gallon Booster Tank.

WM. HENSE FARM (See Drawing No. 19.)

There are three old buildings on this farm. There is a two-story frame dwelling equipped with lightning rods, a frame barn similarly equipped and an old frame shed. These buildings should all be razed.

MAIER TRACT (See Drawing No. 20.)

This group of buildings is shown on horizontal control sheet 25 NE 16, and is located about half way between the north county road and the south county road on Biological Survey Tract. The group consists of an abandoned two-story frame dwelling, a frame garage, a small frame barn and shed, an old corn crib, and a small wooden shed. All buildings with exception of dwelling are in a dilapidated condition and should be razed. The dwelling might be repaired and used.

There is no fire protection at this group.



RECOMMENDATION FOR IMPROVEMENT

IN

FIRE PREVENTION AND PROTECTION

GROUP 1

Building No. 1

Would suggest that three more soda-acid fire extinguishers be installed in the Nutrition Laboratory Building - one on each of the floors.

Building No. 4

There should be four soda-acid fire extinguishers installed in this building - one on each floor.

Building No. 6

There should be two foam fire extinguishers installed in this building.

Building No. 7

This building should be cleaned and used to store extra fire-fighting equipment.

Building No. 8

If possible, this building should be razed as it is a simple frame building used at the present time simply as a storehouse. Adjacent to this building is a temporary wooden shed, housing cement, which should also be razed and this material stored elsewhere.

Building No. 9

There should be two foam fire extinguishers installed in this building - one located in the paint shop and one in the garage. There should also be one more soda-acid extinguisher located in the carpenter shop. This carpenter shop should be cleaned daily and all sawdust and shavings properly removed.

Buildings 11, 11a, 11b and 11c

These buildings, with the exception of No. 11, have fire-resistant walls and roofs covered with asbestos shingles. Building No. 11 is a frame construction. These buildings have wooden ceilings and wood roof frames. The fire hazard is very low in these buildings and one can hardly visualize an internally started fire.

However, a fire might start in the straw on the floor sometime through nonobservance of rules regarding smoking. Each of these buildings have a three-quarter inch water connection. Buildings are approximately 100 ft. long. If this water connection will run to the middle of the building and a fifty-foot length of hose made available at this point, the building could be well protected from fires started internally. Incidentally this hose could be used for cleaning purposes.

Building No. 12

This building should be equipped with one soda-acid fire extinguisher.

Building No. 14, 14a and 14b

This building, in my estimation, is the most hazardous of the group. Building 14 houses a grinding and crushing system and more or less dust is accumulated on all exposed ledges. The second floor is used for the storage of hay. At the present time all exposed timbers are covered with dust. I would suggest that this building be cleaned and treated with whitewash. On Page 91 is a recommended formula for making this whitewash. I would recommend the removal of present grinding from this building.

See recommendation under "Fire Alarm".

I would also suggest that these motors be overhauled and thereby reducing the danger of igniting any dust through sparking of motors. I would recommend that all fire extinguishers located in this building be changed to anti-freeze extinguishers.

Building No. 17N, 17S and 17E

I would recommend that all fire extinguishers be changed to anti-freeze.

Building 18

There should be one anti-freeze fire extinguisher installed in this building.

Buildings No. 20 and 21

There should be one anti-freeze fire extinguisher installed in the basement of Building No. 21. Between these two buildings there are at present installed on each floor fire doors. These doors are installed on the south end of the connecting passageway. This passageway is constructed of concrete and it is my suggestion that these doors be moved to the north end of the passageway.

Building No. 20 is of frame construction and should a fire start in this building it would take considerable time before sufficient heat would travel to the south end of the connecting passageway to the fire doors as located at present - therefore my suggestion for moving these doors to the northern end of passageway.



Building No. 25

There should be two anti-freeze fire extinguishers installed in this building.

Building No. 26

This building is not completed but upon completion there should be two anti-freeze fire extinguishers installed.

LADDERS

Would suggest the purchase of six 40-foot extension ladders and six 15-foot single ladders to be distributed at various points in this group. These ladders along with now existing ladders should be painted a bright red and used only for fire purposes. It is also suggested that two anti-freeze extinguishers of 40 gallons each, mounted upon a two-wheeled hand cart, be supplied to serve this group of buildings.

WHITEWASH

Would suggest that all exposed wood surfaces be covered with a coat of whitewash, the formula of which will be found on Page 31.

HYDRANT LINES

A new six-inch hydrant grid iron line should be installed at this group as outlined on Page 20.

FIRE ORGANIZATION

Following is an observation made by me on March 26, 1935:

Today at about 11:30 am. the fire siren sounded. I happened to be between Silos (15) and Boiler House (6) and wish to record my observations:

(1) Men commenced to appear. Mechanic ran and shut off Siren. Other stood about. No one reported at Hose House. No one reported at Pump House.

(2) While this was the third False Alarm caused by a ground in circuit, it should have been regarded as a regular fire as far as men reporting to their stations. It seems that there is no regular drill, and whereas certain men are assigned to certain stations, there was nothing to show that any systematic organization existed.

(3) Upon investigation it was found that a rat had crawled through the 3" clay tile and had short circuited the system. The mechanic immediately started to repair this defect.

(4) Recommendations: I suggest that drills be held regularly and men know their stations and function the same as they would at a fire.

ALARM SYSTEM

The present alarm system is inadequate but at this time, and until examination of other groups at the Center, any suggestions of improvement will be withheld.

ASSISTANCE FROM CCC

In a talk with Dr. Besey on the lack of watchman service during the night, he suggested that if the Department could give them two horses and saddles, he would furnish the men and make regular patrols each night. He would take care of the horses in regard to feed and housing. He said that his organization would be glad to work in conjunction with the different groups in the fighting of any fires occurring there.

WHITEWASH

Whitewash is universally known as a protective coating, and by many is often preferred to paint for coating the walls and ceilings of shops, storerooms, barns and similar structures. It not only increases the lighting capacity of windows and lighting fixtures, but makes the structure more sanitary and lessens fire hazard. Surfaces treated with whitewash will ignite less readily and burn less rapidly.

In several of the buildings I have recommended that the ceilings and interior walls be whitewashed. While there are several formulas used for making whitewash, I believe the following is the best for application to the buildings covered by this survey. This formula will be referred to as Formula "A".

Formula "A".

- (1) Mix 80 lb. of hydrated lime with water to a creamy consistency.
- (2) Dissolve 2 lb. of common salt and 1 lb. of zinc sulphate in 2 gallons of boiling water.
- (3) Provide 2 gallons skimmed milk. Pour (2) into (1) then add (3) and stir well.
- (4) Add a solution of silicate of soda, one part to 10 parts of whitewash.

The following figures, while only approximate may be found helpful in estimating the amount of materials required to cover wood or concrete surfaces. Whitewash will weigh, on an average, about 12 lb. per gallon. A gallon will have the following covering capacity:

On wood	-	225 sq. ft.
On concrete	-	270 sq. ft.



GROUP 2 A

Building No. 1 - Horse Barn

This material now stored in this building should be piled neatly, and any unwanted material removed. There are old automobile tires and wooden boxes and "odds and ends" piled promiscuously throughout building.

Buildings Nos. 3 and 4 - Power House and Pump House

The fire extinguisher in front of transformer room and transformer room door were blocked off from ready access by a pile of tubing. This condition should be remedied. There should be a concrete ledge inside of transformer room to keep oil from running over floor in case of transformer fire. There should be one foam fire extinguisher located near transformer room.

Building No. 6 - Nutrition Laboratory

There should be eight 2-1/2-gallon soda-acid extinguishers installed in this building when it is completed.

Building No. 7 - Small Animal Building

There should be four 2-1/2-gallon soda-acid extinguishers installed in this building when it is completed.

Buildings No. 14 - Machine Sheds and Silo.

These old frame buildings should be razed.

Building No. 14 - Machine Shed

This shed houses two hand-drawn hose reels and two-40 gallon soda-acid engines. This place should be inspected daily and all obstructions kept from around equipment.

Ladders

There should be two 40-foot extension ladders and four 15-foot single ladders supplied to this area. These ladders should be painted a bright red, kept in specified places, and used only in case of fire. There should be two ladder hooks for use in holding ladders on roofs.

Water Lines

The old 3" line and the new 6" line should be tied together with suitable valves and fittings.

Fire Organization

There should be a firefighting unit organized and regular drills held.

Whitewash

All exposed rough wood surfaces in sheds and barns should be cleaned and given one coat of Formula "A" whitewash.

GROUP 2 B

#1 Long House and Feed Building

There should be two more soda-acid fire extinguishers located in this building. If and when it is arranged to store feed in one of the new buildings, this building should be razed.

Hose House

This building and equipment should be put in order and made accessible. At the time building was surveyed, material was piled in front of equipment. There should be two anti-freeze extinguishers kept in this building.

Garages

If it is intended to continue the use of this building as a garage, there should be a Pyrene extinguisher installed in each garage.

P.W.A. Plumber's Shop

There should be an anti-freeze extinguisher installed in this building.

Dr. Jull's Residence

Just southwest of this lot there is a 6" hydrant with one of the 2-1/2" outlets bushed down and a 3/4" pipe line connected. This pipe line should be disconnected from hydrant.

New Boiler House

This structure is uncompleted. When completed there should be two foam type extinguishers installed.

Poultry Fattening Laboratory

This building is not finished. When completed there should be six soda-acid extinguishers installed.

Fundamental Research Laboratory

This is an uncompleted structure. When finished there should be six soda-acid extinguishers installed.

Poultry Laboratory

The switch for operating light in main distilling room is located at fixture. This light should be controlled from a switch located in basement corridor.

Ether Storage Shed

At present ether, alcohol and benzine used in the laboratories is stored in a small frame shed. There should be a concrete vault built for this storage, preferably below ground.

Biological Laboratory

This building is uncompleted. When finished there should be six soda-acid extinguishers installed.

There is a space immediately over attic ceiling and under roof which should be ventilated.

Construction Shed

There is a frame shed just east of Biological Laboratory which should be either removed or razed.

Laying House

There should be one anti-freeze extinguisher installed in this building.

Brooder House

There should be one anti-freeze extinguisher installed in this building.

Carpenter Shop

There should be one soda-acid extinguisher installed in this building.

Storage Shed

There is a pile of old laying boxes, crates, etc. just south of this building. These should be removed.

Ladders

There should be one 40-foot extension ladder and four 15-foot single ladders, located at specified places in this area. These ladders should be painted a bright red and kept in specified places and used only in case of fire. There should be two ladder hooks for use of ladders on roofs.

Whitewash

The interior of Feed Building should be cleaned and treated with a coat of Formula "A" whitewash. See page 91.

Hydrant

The hydrant southwest of Dr. Jull's should have the 3/4" water line that is temporarily attached disconnected so that hydrant would be available for two 2-1/2" lines.

Nozzles

There should be a nozzle placed in fire hose box on southwest side of Old Nutrition Laboratory.

Fire Organization

There should be a fire fighting unit organized and regular drills held.

GROUP 2 C

Building #18

There should be one anti-freeze extinguisher installed in this building.

Building No. 21

There should be one anti-freeze extinguisher installed in this building.

Project No. 81-B - Hog House

There should be one anti-freeze extinguisher installed in this building.

Old Hay Barn

This building should be razed as soon as the dynamite is removed to a new storage building.

Fire Hydrant

There should be a hydrant installed at a point about 100 feet north of Abattoir and on the other side of road.

Fire Hose

There should be 100 feet of 2-1/2" fire hose with one 1-1/8" smooth bore nozzle assigned to Hog House #81-B.

There should be 100 ft. of 2-1/2" fire hose with one 1-1/8" smooth bore nozzle assigned to box on west end of Building #17.

Ladders

There should be four 15-foot ladders assigned to this location, two to be equipped with ladder hooks.

GROUP 2 D

Building #9 - Mr. Sehorn's Office

There should be one soda-acid extinguisher installed in this building.

Ladders

There should be two 15-foot ladders located in this group. These ladders should be painted a bright red, kept at designated points, and used only in case of fire.

GROUP 2 E

Ladders

There should be one 40-foot extension ladder, and one 15-foot ladder with ladder hook located at this group. These ladders should be painted a bright red and used only for fire.

Hose

There should be two-50-foot lengths of 3/4" rubber hose with 1/2" nozzles located in sheep barn. There should be a hose box and reel containing 300 ft. of 2-1/2" fire hose located at hydrant between sheep barn and dwelling.

Barn, Garage and Scale House

Would recommend that these buildings be razed.

Extinguishers

There should be one soda-acid extinguisher located in Forage Crops Building.

GROUP 2 F

Main Barn

The grinder room in this building should be kept clean and accumulated dust removed from motor and equipment.

Office

There should be one soda-acid extinguisher located in boiler room. The ceiling joists in boiler room are exposed. Would suggest that a metal ceiling be nailed to these timbers.

Hydrant

The 6" fire hydrant located just west of Bull Barn should be relocated. It should be moved about four feet to a position on road side of fence, and outlets faced around 180 degrees.

Roads

The road leading from Main Barn to Bull Barn is in poor shape, and needs attention. In wet weather trucks create deep ruts in road and when road is dry these ruts make exceedingly rough going.

Dwelling and Out-Buildings

There is a small dwelling, garage, and fire outbuildings just south of Bull Barn. These buildings should be razed.

Ladders

There should be one 40-foot extension ladder and three 15-foot ladders located at this group. These ladders should be painted a bright red and used only in case of fire.

Extinguishers

There should be two anti-freeze extinguishers located in Bull Barn.

GROUP 2 G

Extinguishers

There should be two anti-freeze extinguishers located in Horse Barn.

There should be three soda-acid extinguishers located in Machine Shed.

Fire Hose

There should be 200 feet of 2-1/2" Fire Hose and nozzle located at Machine Shed.

GROUP 2 H

Fire Extinguishers

There should be three anti-freeze extinguishers located in Goat Barn.

GROUP 2 K

Extinguishers

<u>Building No.</u>	<u>Extinguishers Required</u>	<u>Soda-Acid</u>	<u>Foam</u>
1			1
5		1	
7			2
8			1
10			2
18			4
20		2	
 Total Required		3	10

Building #1 - Superintendent's Residence

The shingles on this building are wooden and are old, rotten and curled. This building should be reshingled, preferably with asbestos shingles.

Old Buildings

There are several old buildings and structures on this area which should be razed.

Chemical Engine

Located in Building #10 is a hand drawn 40-gallon chemical engine. The hose on this engine should be replaced with new.

Water Supply

There should be approximately 130 feet of 6" pipe to replace 2" temporary line running to water tower.

Hydrants

There should be a 6" 2-way hydrant located near roadway just north of Buildings no. 18.

Fire Hose

There should be 200 feet of 2-1/2" fire hose and nozzle located near bull barn.

There should be 200 feet of 2-1/2" fire hose and nozzle located near Young Stock Barn.

Ladders

There should be two-40-foot extension and four 15-foot ladders located at specified places on this area. Two of the single ladders should be equipped with ladder hooks. These ladders should be painted a bright red and used only in case of fire.

GROUP NO. 3

Building No. 1

There is a standpipe outlet located near the center of the south corridor wall. There should be a hose rack, valve, 50' of 1-1/2" linen fire hose, and a 1/2" nozzle installed at this point.

Fire Hydrants

There are five 6" 2-way hydrants located in this area as follows:

1. About 66 ft. due west of south side of Laboratory Building.
2. About 20 ft. north of and 19 feet west of Northwest Corner of Men's House.
3. At the northwest corner of junction of Upper Road and First Lane.
4. At the northwest corner of junction of Upper Road and Second Lane.
5. About 90 feet due north of northeast corner of barn No. 26.

All hydrants with exception of No. 2 have two 2-1/2" outlets with one 6" suction connection.

On No. 2 hydrant, one 2-1/2" outlet has been bushed down to 1-1/2".

It is recommended that this 1-1/2" bushing be removed and all hydrants be standardized for 2-1/2", therefore requiring only one size of fire hose.

It is also recommended that an additional hydrant be installed at a point approximately halfway east and west between Superintendent's House and Foreman's Cottage.

It is further recommended that three 1-1/2" pipe hydrants as per sketch be installed on service line running in front of Isolation Stables at the following points:

1. Halfway north and south between Barns No. 51 and No. 52.
2. Halfway north and south between Barns #53 and #54.
3. Halfway north and south between Barns #55 and #56.

Fire Hose

There is no 2-1/2" fire hose for this area. It is recommended that a hand drawn hose reel with 300 feet of 2-1/2" hose be located at Implement Shed. There should be an extra 200 feet of 2-1/2" hose located in storehouse for emergency. There should also be two 1-1/8" smooth bore nozzles.

Fire Extinguishers

There should be ten (10) soda-acid and fifteen (15) anti-freeze 2-1/2-gallon extinguishers distributed in this area.

Fire Ladders

There are no ladders on this area. There should be two 40-ft. extension ladders and four 15-ft. ladders located at convenient points. These ladders should be painted a bright red and kept in specified places and used only in case of fire.

Fire Organization

There should be organized a fire-fighting schedule with men assigned certain stations and with specific duties to be performed. Drills should be held regularly.

GROUP NO. 4

Fire Extinguishers

There should be ten (10) more 2-1/2 gal. soda-acid extinguishers and one (1) 2-1/2 gal. Anti-freeze extinguisher located at this group.

Water Supply

There should be a 6" main laid from water tower to this group.

Ladders

There should be two 40-ft. extension ladders and ten 12 ft. ladders located at various points throughout this area. These ladders should be painted a bright red and used only in case of fire.

Fire Organization

A fire fighting schedule should be organized with men assigned certain stations. Regular drills should be held weekly.

GROUP NO. 5

Water Line

It is recommended that a 6" water line be laid from blanked Tee located in present line running parallel to Radio Road at a point approximately 770 feet west of Machine Shed (Group 2-G) to this Group. The distance from this Tee to this group is approximately 6,000 feet.

Extinguishers

There are no extinguishers in any of the buildings in this group. When buildings are completed there should be installed the following:

8 soda-acid extinguishers in Entomology Laboratory
1 soda-acid extinguisher in Headhouse of Greenhouses.

Hydrants

If and when new 6" water main is installed, there should also be three hydrants put in - one near each building.

Hose

If and when new hydrants are put in there should be 200 feet of 2-1/2" hose and nozzle assigned to this location.

Ladders

There should be one 40-ft. extension ladder and three 12-ft. ladders placed at convenient points about this group.

Fire Organization

The employees should be organized into a fire-fighting unit and regular drills held.

GROUP NO. 6

If and when a 6" line is extended from Machine Shed to Entomology, a branch should be taken off running to Radio Group and three hydrants installed.

GROUP NO. 7

Under date of April 16 I wrote to Mr. H. A. Nelson as follows:

"As a result of a survey this morning of Insecticides Control Section in regard to fire prevention and fire protection, I would

suggest that the following items be installed as soon as possible in the Insecticide Testing Section Building:

2 - Foam Type Fire Extinguishers - 2-1/2 gallon
One to be located in Boiler Room in basement
One to be located in Laboratory.

2 - Soda-Acid Type Fire Extinguishers - 2-1/2 gallon
One to be located in corridor in basement
One to be located in corridor 2nd floor.

1 - Heavy Blanket for Chemical Laboratory.

1 - Pail fine sand " " "

1 - Hose for Soda-Acid 2-1/2 gallon Extinguisher (To
replace one at present on extinguisher now
located in southeast corner room - 1st floor.)

"The two extinguishers now located in rooms on the first floor
should be located one at each end of corridor of first floor. This
would make them more accessible in case of fire.

"In the Head House there should also be:

1 - Soda-Acid Type Fire Extinguisher - 2-1/2 gallon

"With the addition of this equipment to that which they now have,
I believe they will be well protected against fires started internally.

GROUP NO. 8

When Fruit Products Laboratory is completed it should be
equipped with fire extinguishers.

Water Line

It is suggested that a 6" water line be run from the W.S. & S.D.
supply on the pike west to the Field Station and branches taken off and
hydrants installed at Horticultural Building and Field Station Buildings.

The buildings at Field Station are all of frame construction and
are not amply protected with water lines.

GROUP NO. 10

There should be two soda-acid fire extinguishers installed in
dwelling on this tract.

GROUP NO. 11

Extinguishers

There should be the following additional fire extinguishers installed at this group:

- 1 Pyrene
- 1 Foam Type
- 3 Anti-Freeze

Fire Hose

There should be 300 feet more of 1-1/2" linen hose and one 1/2" nozzle located as specified.

Ladders

There should be one 30 ft. extension and three 15-ft. ladders assigned to this group.

Motorized Equipment

Considering the large area covered by the Beltsville Research Center and the widely separated location of the different groups, it would seem that some motorized equipment should be located on this area. Speed should be of prime importance in determining the type of apparatus.

With this in mind I am recommending one Combination Pumper of 500 gallon capacity, with 100 gallon booster tank, 1,000 ft. of hose body and the following miscellaneous equipment:

Specifications

One standard Ford Truck chassis of 157" wheel base with following extra equipment:

1. Dual rear wheels and tires
2. Rear fenders for dual wheels,
3. Long running boards
4. Extra heavy rear spring
5. Roadster type windshield
6. Tractor treads for dual wheels
(Hipkins or equal.)

Body - Strongly built of steel and adequately braced throughout, approximately 90 inches long, 46" wide, and 27 inches high. Floor boards made of selected hardwood, easily removed, and constructed to allow proper ventilation of hose. Hose capacity, 2,000 feet 2-1/2" double jacket hose.

Rear Hand Rail - a 1-3/8" diameter nickel plated rail, securely fastened between rear body standards.

Side Steps - Between front and rear fenders on both sides of apparatus, a wide step supported on pressed steel hangers suspended from frame.

Rear Step - This should be of ample depth and the full width of apparatus, supported by forged steel hangers attached to frame and made rigid by means of forged steel braces from side of nose body.

Mud Guards - Full crown fenders made to fit apparatus and attached to side steps front and rear.

Tool Box - Sheet steel tool box on side step.

Ladders - One (1) 14-foot solid side roof ladder, equipped with latest model folding ladder hooks and nested in 20-foot extension.

One (1) 24-foot solid side extension ladder equipped with rapid hoist device.

Sides of ladders to be of selected straight close-grained Oregon pine, thoroughly seasoned under natural methods for a period of four years. Rungs to be of straight-grained second growth ash. Ladders to be reenforced laterally with iron rods at regular intervals. Ladders to have natural finish.

Ladder Brackets - One set malleable iron brackets securely bolted to body, to carry above ladders conveniently, and arranged to prevent rattling of ladders, and at same time to allow quick removal.

Lanterns - Two hand electric lanterns suitably mounted.

Siren - One electrically operated siren horn, nickel-plated, mounted on dash.

Play Pipe Holders - Two, mounted on rear step, made of hard wood.

Extinguishers - One splash-proof soda-acid Fire Department Type fire extinguisher, capacity 2-1/2 gallons.

One foam, Fire Department Type, extinguisher, capacity 2-1/2 gallons.

Both to be nickel-plated finish.

Extinguisher holders - Two heavy, quick acting, clamp type for 2-1/2 gallon extinguisher securely bolted to running board.

Axe - One (1) regulation Fire Department pick head fire axe. Head to be of crucible steel and handle of second growth hickory.

Axe Holder - One set of holders for axe, including one axe blade scabbard and one spring tulip for handle, securely bolted to apparatus.

Crow Bar - One (1) 36" forged steel regulation Fire Department crow bar.

Crow Bar Holder - One set of holders for crow bar securely bolted to apparatus.

Pike Pole - One 10-foot pike pole, mounted

Searchlight - One 10-inch searchlight, mounted.

Bell - One 10-inch locomotive bell.

Swivel Lights - Two swivel lights mounted on rear standards.

Water Tank - A 100-gallon capacity water tank of rust resisting steel. Inside of tank heavily coated with chemical and rust resisting paint. Tank rigidly mounted in suitable brackets crosswise in chassis. Suitable piping arrangement so that water may flow directly from tank to pump when desired. A large filling spud should also be provided. Suitable arrangements made for draining tank to prevent freezing when pumping from hydrant or suction.

Hose Box - Capacity 200 feet 3/4" hose. Box constructed of heavy sheet steel, located under the body at the rear directly in front of the rear step, leaving the hose body free and clear of any obstruction. Edge of hose box should be beaded to allow smooth surface for hose to run over.

Water Piping - There should be a by-pass arranged so that tank may either be refilled from pump or water passed through water hose. Valves so arranged that operator always has full control.

Hose - 200 feet of 3/4 inch, 4 ply hose, coupled with heavy nickle plated brass couplings. One shut-off nozzle of eccentric type constructed of heavy nickle plated brass with 3/8 inch tip. Two 3/4 inch spanners.

Pump - The pump should be of the rotary type mounted back of the driver's seat. The case and head to be close-grained, grey iron casting. The rotors to be of bronze cast from virgin metals and pressed onto stainless steel shafts, mounted on roller bearings. Renewable plates to be inserted between pump body and head. The suction inlet and discharge outlet with gate valve should be located conveniently on each side. The pump to be fitted with relief valve, hand churn by pass and inside strainer and cap on the suction inlets.

Pump Capacity - At 120 lbs. pump pressure, 500 gallons
At 200 lbs. " " 250 "
At 250 lbs. " " 167 "

The above capacities to be delivered at a normal lift up to 10 feet.

Pump Equipment - Two lengths of suction hose ten feet long, 3-1/2 inch internal diameter with couplings, suitably mounted in full length pressed steel troughs. One metal outside suction strainer. One metal inside pump strainer. One double swivel hydrant connection for attaching suction to 2-1/2" hydrant opening. One compound pressure gage - 120 lbs. One water pressure gage - 300 lbs. One suction hose coupling wrench. One 2-1/2" hose spanner. One double male connection. One double female connection.

Finish - Apparatus finished in official Fire Department Red with fine coach colors.

Lettering - To be lettered as specified.

ROADS

A road program is in progress at the present time. When completed all groups will be served by good roads.

ORGANIZED FIRE COMPANIES

It is recommended that each group form an organization to respond to fire calls. The members should be instructed in their duties and drills held regularly. It is suggested that the superintendent be designated as Captain and foremen as lieutenants. Orders given by them would have more weight than those given by one of the regular workmen.

AUXILIARY POWER

It is suggested that gasoline engines of suitable horse power be provided at all points where pumps are located that supply water to water towers or fire lines. These engines to be so placed that in case the electric power fails, they can serve to drive pumps.

WATER LINES

(See recommendations under each group.) Water lines of 6" C.I. pipe are being installed. These lines will cover area sufficiently for fire protection.

WATCHMAN SERVICE

It is recommended that a central watchman organization be established with officers and men controlled from one central station.

FIRE ALARM SYSTEM

It is recommended that a manual fire alarm system of the type described in Federal Master Specification Wf-396, dated February 7, 1933, be installed at the Beltsville Research Center. Every Characteristic of a shunt type system described in WF-396 shall be considered as mandatory and shall be included in the system furnished, subject only to the following exemptions:

- C-3. System is to be of the highest proprietary grade as covered in this paragraph.
- D-1. The official system of this group installation is to be furnished in accordance with all paragraphs of WF-396

except as modified by this job specification and is to operate in conjunction with various zone units comprising the group fire alarm system, and also with an automatic copper tube temperature rate-of-rise fire detection system all as specified and described under "Supplemental Requirements".

D-3. Omit.

D-4. All cable conductors shall have a distinctive colored braid for each individual conductor. For all interior work wires shall be not less than #14 B&S gauge. For all underground work wires shall be size not less than #12 B&S gauge. For all wiring installed on poles provide lead sheath cable suspended at two-foot intervals on galvanized messenger cable. At all terminal boxes or cabinets install in interconnection panel with treated pine back board. These cabinets shall be of ample size to receive all wires and cables and to mount the required terminal strips without crowding. Terminal strips shall be Western Electric or equal with hardwood strips through which all wires are to be threaded. A separate connector with two screws shall be provided for each and every wire or cable conductor entering the box. Cross connection between wires shall be made with insulated wire and properly secured. Groups of wires shall be neatly laced. Where indicated on drawings watertight terminal cabinets, type X, G&W, or equal approved, are to be furnished.

E-1e and E-1f. Omit.

E-1m. Boxes are to be of the "open door" type.

E-1n. Indoor stations will be mounted semi-flush or on surface of walls at contractor's option.

E-1o. This paragraph applies to all boxes not located in buildings.

E-1r. Omit all paragraphs.

E-2, E-3 and E-4. Omit all paragraphs.

E-5. Furnish printing register, flush mounted in desk furnished under this contract and located in Fire House.

E-64. This paragraph applies to all bells not located in buildings.

E-8b. Official control panel shall be mounted in partition as described in this paragraph.

E-9a. The official panel shall be equipped with three box loops.

E-9b. The official panel shall be equipped with two gong circuits.

E-9e. Omit second sentence. Therefore, include supervision of contacts within boxes as required in third sentence.

E-9f. Automatic feature shall be provided.

E-10b, E-10c and E-10d. Omit.

E-11. Supervision shall be from power supplied from remaining leg of 110/220 volt supply.

E-12. Omit all paragraphs.

SUPPLEMENTAL REQUIREMENTS:

Sup. 1. The official fire alarm system hereinbefore specified shall be supplemented with a number of unit or zone systems, operating in conjunction with the official system as herein-after described.

Sup. 1a. Unit systems are to be of the closed circuit general alarm selective code type.

Sup. 1b. All stations, covered by this specification, shall operate over the official circuits of the WF-396 system hereinbefore described and in addition thereto shall function to operate the gongs associated with the particular zone in which they are located. All signals shall be permanently recorded on the printing register at Fire Headquarters.

Sup. 1c. Current for operating and supervising unit systems shall be as provided for the official system, each control panel being supplied from a source convenient to the panel.

Sup. 1d. Unit panels are to be located in apparatus rooms or other specified places as shown. Panels shall be of Ebony Asbestos and equipped with the necessary supervisory and control equipment including milliammeter and thermal cutout. They are to be furnished and installed complete with surface type cabinets, each with window to show milliammeter. Conduit shall enter cabinet through knockouts only on sides or bottom.

Sup. 1e. Trouble bells shall be supplied for each control panel, arranged for mounting outside the cabinet as directed.

Sup. 1f. Bells shall be sizes shown on drawings, single stroke, solenoid type, under dome, rust-proof and finished in dull black. Outdoor bells shall be furnished in water-tight construction with cast bellmetal gongs. All bells are to be as specified for official system.

Sup. 1g. WIRING. All wiring is to meet requirements as given for the official system and is to be connected in accordance with drawings to be furnished by the manufacturer of the fire alarm equipment.

Sup. 1h. Extra equipment to be supplied as follows:

10 sets station wrenches and test keys.
Duplicate sets of keys for all cabinets.
10 rolls of paper for recorder.
12 framed directory cards, giving code numbers of all boxes in the system, with location.
1 Set of drawings showing entire wiring layout and connections.

Sup. 2. The official and zone fire alarm systems hereinbefore specified shall be supplemented with an automatic fire alarm system operating in conjunction with the official and zone systems, and serving to protect the entire areas of Feed Barn in zone No. 1. (Buildings 14, 14a & 14b).

Sup. 2a. This automatic fire alarm system shall be of the pneumatic tube, compensating, rate-of-rise type.

Sup. 2b. This automatic fire alarm system shall be equipped with a transmitter or code sounding device of an approved type that will serve to automatically send in an alarm over both the local zone circuits and the official circuits in the same manner as if a fire alarm box had been manually operated.

Sup. 2c. All circuits in connection with the automatic detecting system shall be fully supervised from the unit control panel in the associated zone.

Sup. 2d. The automatic detecting system will function with the same non-interference features as required for the manual boxes in the official system in the event that a manual box and the automatic system are operated simultaneously.

Sup. 2e. The coded alarm from the automatic system shall be as given on the schedule of codes and will have the same characteristics and timing as the code from manually operated stations.

Sup. 2f. The tubing circuits of the pneumatic tube, rate-of-rise automatic fire detecting system shall be installed in accordance with the following detailed requirements:

(1) Installation: Pneumatic tubing circuits shall be installed throughout the protected areas in accordance with the following requirements:

- (2) Each tubing circuit shall consist of a continuous length not exceeding 1,000 feet without branches or alternative paths.
- (3) Where necessary, tubing must be protected against mechanical injury.
- (4) Tubing shall be enclosed in conduit, or otherwise insulated or lagged where this is necessary in order to isolate signals.
- (5) Lines of tubing shall be so disposed throughout the area to be protected that they will not be more than 30 ft. apart, and so that no point on the ceiling will be more than 15 ft. from nearest point of any run of tubing.
- (6) In every enclosed space or separate room there must be exposed at least 5 percent of the total length of the tubing circuit.
- (7) In no case shall less than 25 ft. of exposed tubing be used in any enclosed space or separate room.
- (8) Tubing shall be run either directly on ceilings, or on side walls, if placed not more than 20 in. below ceiling level or it may be run upon lower sides of timbers or projections. Where the tubing runs are placed across beams or joists it shall be suspended on a steel messenger wire. On peaks or shed ceiling or roofs, one or more runs of tubing shall be placed at the highest point.
- (9) Where beams or other projections form bays more than 1 ft. deep and more than 8 ft. wide between beam centers, at least one line of tubing shall be run in each bay. Where this requirement is impracticable because of unusual beam structure, or where special conditions require protection at other points than at the ceiling, invitation for bids may include special instructions.
- (10) All tubing shall be securely and neatly installed on ceilings or walls, without noticeable sag. Where required tubing may be erected on a #14 steel messenger wire. For installation in small enclosures, or where preferred, the tubing may be furnished assembled on a circular copper base.
- (11) Tubing. The tubing shall be made from commercially pure copper, shall be seamless and free from splits or cracks. It shall be drawn to an external diameter of from approximately .081 of an inch to .091 of an inch, with an internal diameter of .051 of an inch. Each length shall be tested air-tight at a pressure of 60 pounds per square inch, and shall be processed to insure complete freedom from moisture or dust. All splices shall be made by inserting the ends of the lengths being joined into copper sleeves, the ends of the sleeve being silver-soldered. For conditions where excessive dampness or corrosive gases may affect the

copper, the tubing shall be provided with an electrolytically deposited coating of pure lead on the outer surface.

(12) Detector Units. Individual detector units shall be furnished for each pneumatic tube circuit, and shall be installed within or adjacent to the area protected by the tube circuit. All devices necessary for the operation of the tube circuit, consisting of two detector frames and diaphragms, two compensating vents, a test valve, test switch and annunciator relay, shall be assembled on a bakelite base and enclosed in a substantial dust-proof metal case. The case shall be provided with a locked front, shall be finished in black enamel, and shall be provided with conduit openings top and bottom.

(13) Manual Detector Units. For locations where manual stations are required the detector units shall be furnished with a break-glass manual attachment to permit of the manual operation of the system. All manual units shall be finished in red enamel and shall be provided with a metal plate on which the words "In case of Fire Break Glass Rod" shall be etched.

(14) Test Equipment. A means whereby the heat-responsive element of the system may be tested for operation, without necessitating replacements of parts or devices as a result of such test, shall be furnished as part of the equipment.

(15) Number Plate. A bronze or nickel plated number plate, with raised or depressed figures corresponding to the zone number on the annunciator shall be secured to the outer cover of each detector unit where it may be clearly seen. The raised portion shall be polished and lacquered and the depressed portions dark matt finish.

SCHEDULE OF EQUIPMENT

	PANEL	STATIONS			BELLS		
		Wpf	Reg	10"	10"	Wpf.	6"
CENTRAL EQUIPMENT:							
1 WF-396 Panel, 3 box, 2 gong cct.	1			1			3
ZONE #1							
1 536 Panel, 1 box, 3 gong cct.	1	6	3	2		6	
ZONE #2							
1 536 Panel, 1 box, 3 gong cct.	1	1	12	12		1	
ZONE #3							
1 536 Panel, 1 box, 2 gong cct.	1	2	6	3		2	
ZONE #4							
1 536 Panel, 1 box, 3 gong cct.	1	4	9	9		4	
ZONE #5							
1 536 Panel, 1 box, 3 gong cct.	1	3	5	4		3	1
ZONE #6							
1 536 Panel, 1 box, 2 gong cct.	1	1	4	4		1	
ZONE #7							
1 536 Panel, 1 box, 1 gong cct.	1		1	1			
ZONE #9							
1 536 Panel, 1 box, 4 gong cct.	1	5	9	8		5	1
TOTALS	9	22	49	44	22	5	
ZONE #8 (alternate) (Dual Purpose Cattle)							
1 536 Panel, 1 box, 1 gong cct.	1	2	1		1		1
ZONE #6 (alternate) (Horticultural Group)							
1 additional gong cct.			3	3			

ALTERNATE FIRE ALARM SYSTEM

In view of the fact that the installation of a complete automatic telephone system is contemplated for this area, an alternate fire alarm system using the telephone is suggested.

The telephone circuit, while not electrically supervised, is often used for the purpose of conveying a fire alarm.

For this service there are provided in each Group:

(a) A specially equipped fire call line. The call number is 22 for a 2-digit exchange and 222 for a 3-digit exchange. Each telephone is provided with a designation card at the center of the dial listing this call number in a conspicuous manner using red printing ink.

(b) A red-finished telephone with loud gongs but no dial, a large lamp annunciator, a lamp-releasing key (switch) and a framed list of all telephone stations arranged with their call numbers in numerical order, located in the main office, or watchman's office.

(c) One or two other similar red-finished telephones with loud gongs but no dials, located in the offices of the Superintendent and Mechanics. Another such telephone is provided for the fire headquarters.

All of the red-finished telephones are connected to the fire-call line and are called simultaneously. Answering at any one of them stops the ringing at all of them. These telephones cannot be used for making calls, hence they are always ready to receive a call -- not only one call, however, but any number of inward calls simultaneously. Furthermore, just as long as there is any calling telephone connected to the fire-call line, all the gongs will ring if all the fire-telephone hand sets are on their supports. Thus an answer or an immediate investigation is compelled. Furthermore, the ringing of the gongs is continuous instead of periodic. Thus the possibility of even a few seconds delay in ringing is avoided.

Each telephone station line in Fire House has a lamp on the annunciator which lights when a fire call comes from that line and when lighted displays the line number. Each lamp so lighted will remain lighted, after the calling person has hung up his receiver or hand set, until released by the hand-operated releasing key. Thus the making of a record of the calling station or stations may be deferred until all the more urgent matters have been attended to.

The other fire-call telephones are for supervisory purposes. The administrative officers for whom these other fire-call telephones are provided can listen and get all needed information immediately. They can also assume charge in case of any failure making their

authority necessary. A fire-call telephone furnished for the fire headquarters enables the person there on duty to hear the original fire report and to be in readiness to receive orders.

The annunciator is equipped with a set of test keys (switches) by means of which the lamps can be lighted in groups. The annunciator always has one or more pilot lamps which light when any line lamp lights. If a pilot lamp lights and a line lamp does not light (which will rarely happen), it is probable that the line lamp has burned out. By operating the test keys the lamp that will not light can be found in a few seconds. Similarly if a line lamp lights and its pilot lamp does not, it is probable that the pilot lamp has burned out.

The numerical list of line numbers is mounted on the wall close to the fire-call telephone with which the lamp annunciator is associated. This list is kept correct to the minute at all times. It enables a quick location of the place from which a fire call is made.

Every telephone serves as a fire-reporting station just as a fire-alarm call box serves and more so because the calling party can by speaking, report the exact location and nature of the fire. It is the practice to provide some telephones for fire reporting even where not needed for other purposes. The economy effected by using a telephone exchange for this purpose is so great as to warrant a considerable number of extra telephones for this purpose alone. (From abstract of "Interior Telephone Exchanges for Federal Penal Institutions" by W. E. Brown, presented at the January 1935 Meeting of the Federal Fire Council.)

FIRE HAZARD SURVEY
BELTSVILLE RESEARCH CENTER
Beltsville, Md.

August 14, 1935.

2nd Supplementary Report

Boilers

Located in some of the buildings throughout the center are many boilers. There are several small high pressure steam boilers, low pressure steam boilers, and hot water boilers. Some of these boilers are fired with coal while others are fired with oil.

The purpose of this supplementary report is to recommend certain changes in operating personnel in order to reduce the fire and explosion hazard.

The boilers located in the Beltsville Research Center may be classified as follows:

1. Central Plants, Low Pressure,
2. Central Plants, High Pressure,
3. Central Plants, Combination High and Low Pressure.
4. Isolated Low Pressure Boilers.
5. Isolated High Pressure Boilers.

For this report, all boilers operating at a pressure of 15 pounds per square inch or less will be considered as "Low Pressure", while those operating at a greater pressure will be considered as "High Pressure".

Class 1.

The boiler to be installed in the Machine Shop is one of 45 Horsepower operating at 15 pounds pressure.

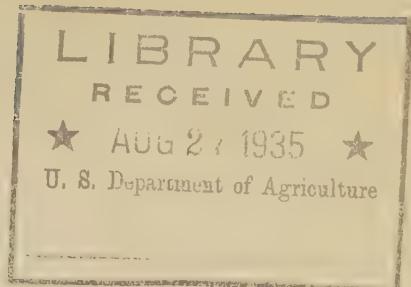
There are competent men present at all times during the day to operate this boiler. It is to be coal fired. At night the fires can be banked and attended by watchman who makes the rounds.

Class 2.

At Boiler House in Animal Husbandry Group, known as 72-B, the following boilers are to be installed:

- 1 - 150 Horsepower, operating at 75 pounds pressure
- 2 - 75 Horsepower, operating at 75 pounds pressure

This plant should have a licensed man on operation at all times.



At Boiler House, Dairy Group, there are four 48" E.C.I.W. boilers operating at 40 pounds pressure. The boilers are oil fired. There should be a licensed operator here at all times.

Class 3.

In the Boiler House known as #75, Poultry Section, the following boilers are to be installed:

2 - 40 Horsepower operating at 15 pounds pressure
1 - 10 Horsepower operating at 50 pounds pressure

This plant should have a licensed man on operation at all times.

At the Horticultural Section there are two Boiler Rooms, each in a separate building. In the boiler room on West side of Headhouses there are two 150 horsepower boilers operating at 15 pounds pressure, and in the boiler room in Fruit Products Laboratory there is to be a 100 horsepower boiler operating at 75 pounds pressure.

There should be a licensed operator for each shift. This operator could take care of both Boiler Rooms.

Class 4 and 5.

Boilers under this class are those under 10 horsepower, and which can be attended by janitor or watchman. Those that are fired with oil are equipped with automatic regulation of the burner and water level, and under care of janitor or watchman present no special hazard. Those fired by coal need no particular mention in this report. Following is a partial list of locations of boilers under these classes:

Group 1 A, Bureau of Dairy Industry

Building No. 34, Dairy House

1 Small Vertical firetube High Pressure Boiler
1 Small C. I. Low Pressure Boiler.
(Both fired with coal.)

Group 2 B, Bureau of Animal Industry, Poultry Investigations

Dr. Jull's residence

1 small Low Pressure Hot Water Boiler, oil fired

Old Nutrition Laboratory

1 small C. I. Low Pressure Boiler, coal fired

Group 2 B, Bureau of Animal Industry, Poultry Investigations (continued)

Rat Laboratory

1 small Low Pressure Hot Water Boiler
1 small High Pressure Steam Boiler
(Both coal fired.)

Group 2 E, Sheep Investigation

Sheep Barn

1 small Low Pressure Steam Boiler, coal fired

Group 2 F, Beef Cattle Investigations

Office

1 small Hot Water Boiler
1 small High Pressure Steam Boiler
(Both coal fired.)

Group 2 K, Dual Purpose Cattle Investigations

Building No. 5, Milk Room

1 small High Pressure Steam Boiler, coal fired.

Group No. 3. Pathological Disease Research Unit

Laboratory Building

2 C.I. Low Pressure Heating Boilers
1 small High Pressure Steam Boiler
1 10 Horsepower Steam Boiler
(All coal fired.)

Men's House

1 small Hot Water Boiler, coal fired

Superintendent's House

1 small low Pressure Boiler, coal fired

Foreman's cottage

1 small Low Pressure Boiler, coal fired

Group 4. Zoological Division

Zoological Laboratory

1 small High Pressure Boiler, coal fired

Barn

1 small High Pressure Boiler

1 small Low Pressure Boiler, both coal fired

Dog Houses

1 small Low Pressure Boiler, coal fired

Anaplasmosis Barn

1 small Low Pressure Boiler, coal fired

Group No. 5. Bureau of Entomology and Plant Quarantine

Entomology Laboratory

1 small Low Pressure Steam Boiler

1 small Hot Water Boiler

1 small High Pressure Boiler
(All oil fired)

Mushroom House

1 small L. P. Steam Boiler, coal fired

Greenhouse

1 small L. P. Boiler

Group No. 7. Food and Drug Administration

Insecticide Testing Laboratory

2 small C. I. Low Pressure Boilers, oil fired.

Group No. 11. U. S. Plant Introduction Garden

Boiler Room

3 Low Pressure Heating Boilers, oil fired

Sterilizer House

1 10 Horsepower High Pressure Boiler, coal fired

Group No. 11. U. S. Plant Introduction Garden (continued)

Clerk's House

1 small Hot Water Boiler, coal fired

Propagator's House

1 small Hot Water Boiler, coal fired.

Recommendations:

At the National Boiler Inspector's Convention in Chicago, it was brought out that more accidents were recorded in small and low pressure heating plants than in the large high pressure plants. This fact was attributed to the lack of competent operators in the low pressure plants.

It is needless to go into details of the several things that might happen in an unwatched boiler plant. It would probably sound highly pessimistic.

I would recommend that a licensed operator be placed in charge of Boiler rooms as outlined under "Class 2" and "Class 3".

P. L. Blake,
Plant Engineer.

